THE CANADIAN Horticulturist.

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Arvon Practical Company
Marquette, Michigan

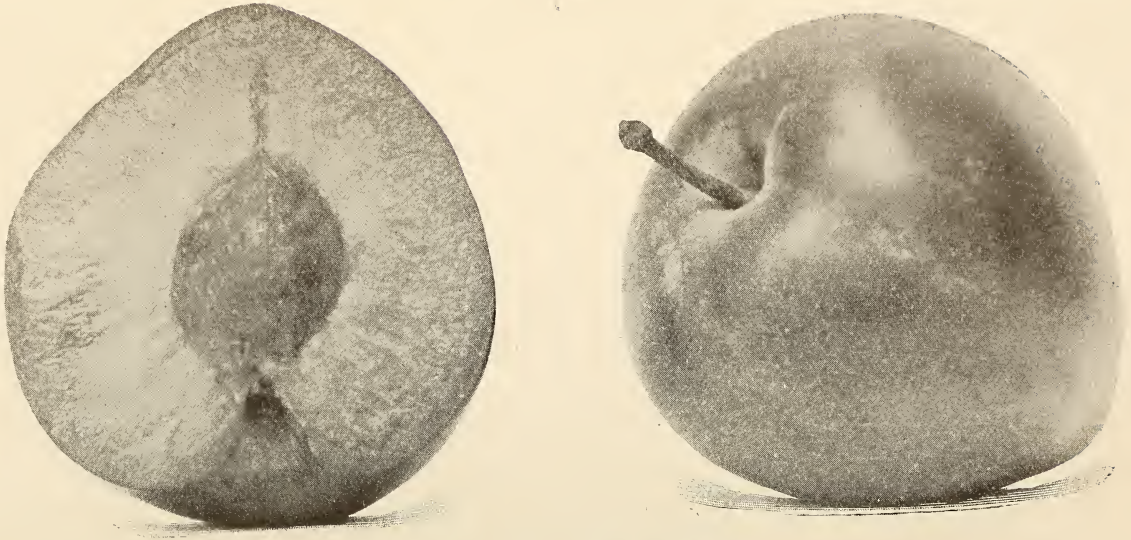


FIG. 2515. RED JUNE (ENLARGED)

Brown Brothers Company
Nurserymen, Limited

THE
CANADIAN HORTICULTURIST

JANUARY, 1903

VOLUME XXVI NUMBER 1

THE JAPANESE PLUMS

ALTHOUGH only introduced into America some thirty years, these plums have become very widely disseminated, receiving probably a larger place in our orchards than their real merits deserve.

Many varieties of them have been introduced and pushed upon the attention of the unsuspecting fruit grower, who has too often found in them a sad disappointment. The Wickson for example has been much boomed, and truly it is a large fine variety; but alas! so far in our orchard, and we have planted about 100 trees, it has proved itself most unproductive.

Some of us were discussing theJapan plums at the Industrial, where Mr. John Mitchell, of Clarksburg, Ont., showed a fine collection; and the general agreement was that the following four varieties were the choice of all the Japans to cover the season, viz., Red June, Abundance, Burbank and Chabot.

Mr. S. D. Willard, of Geneva, New York, speaking before Western New York Fruit Growers, said of these Japans, that owing to their early blossoming his crop of Abundance was nearly ruined by spring frosts, when, hearing of the Burbank, he had them all topworked to the latter variety. "I like," he said," the Abundance to eat out of hand, but I do not think it is as good a handler and shipper as the Burbank and some of the others. We have had a good many Burbanks. Some seasons, we have had four or five thousand baskets. A few years ago when looking up something better, if we could, we ran on to the Red June and in conference with a man from Lake Michigan, I learned that side by side with the Burbank, when the spring frost had done injury to to buds of the Burbank, the Red June would come out in good shape. Following up that idea in connection with the fact that it is the earliest of all plums to ripen that I know of, we have planted and fruited them quite largely. We have had them ripe and in good shipping condition on the 21st of July. I made up my mind it was a good plum for the orchard man, and we have found it so. We had something over a thousand baskets of them last year, (1901), and they brought a higher price per basket than any other plums we shipped, except some of the old varieties that came on the market after the other varieties were out of the way."

We have received the following replies to inquiries regarding the behavior of the Red June in various sections of Ontario:—

T. H. RACE, Mitchell:—The only varieties among the Japan plums that I have tried on my grounds here are the Prunus Simoni, Wickson, Abundance, and Burbank. The first two I have discarded; the third I have

planted in where I threw all my Lombards out and I value it very highly. The Burbank is my second favorite, though in some respects it is a better plum than the Abundance. Like the Abundance tree the Burbank must be cut back very severely in order to get a good, shapely tree. This is especially important with the Burbank as the yearly growth is very great and the tree is of a sprawling nature. It should be cut back to one foot every year if a good solid top is to be secured. It will take more years to get a good tree, but it will last all the more years and bear its fruit better after it has been secured. On a properly pruned tree the Burbank is a beautiful plum.

A. E. SHERRINGTON, Walkerton :—In my opinion the Red June is going to be one of the most valuable plums for either home use or market, chiefly owing to its earliness. It is a good keeper, and consequently an excellent shipper.

M. PETTIT, Winona :—I have fruited the Red June plum four years. The trees grow well, and bear regular crops from the third year of planting. In quality it is not quite as good as Lombard, which it resembles somewhat in appearance though a little smaller in size. It ripens about the first of August, and being the first plum to ripen it is valuable for market, bringing about double the price of ordinary plums. As soon however as this plum is planted in large quantities, it is a question if it will bring any higher price than the other varieties.

It should be valuable for the family garden, because it extends the season for using fresh plums.

W. W. HILLBORN, Leamington :—I have been very favorably impressed with this variety. The tree is rather more spreading in habit than the Abundance, and seems to be quite productive. The fruit is roundish conical with a distinct point, and rather above medium size. The color is quite dark when fully ripe ; the quality is good. It ripens just before Abundance and on this account it promises to be valuable for market. I have not tested it long enough to know if it has any special weakness.

R. L. HUGGARD, Whitby :—I consider the Red June a profitable early plum. Its color will always attract buyers. The fruit is especially valuable for canning, as the flesh remains firm in cooking, and retains its flavor.

G. C. CASTON, Craighurst :—In reply to your enquiry about the Red June plum, I think very highly of it. It began to bear the second year after planting, and, with the exception of this year, bore regularly. It comes early. I have only one that comes in ahead of it, (the Early Botan) and it bears a heavy crop. I always include the Red June when recommending a list of plums for this section. The quality is, I think, very good. It is large in size and quite handsome. I have no hesitation in recommending it for this section.

CHARLES YOUNG, Richard's Landing : My Red June plum tree bore a few fruits last year, and if I were planting out a plum orchard I would not hesitate to include the Red June. The trees here (St. Joseph's Island) have proved perfectly hardy. I measured some of last year's growth to-day (December 23rd) and it was five feet in length. The trees promise fruit next year.

J. G. MITCHELL, Clarksburg :—I can unhesitatingly endorse the Red June as one of the most desirable of the Japan plums ; not so much for its quality, which is only fair as compared with the best Europeans, but for the season in which it ripens. It is the earliest good plum we have. The tree is a strong grower, forming a beautiful symmetrical top and begins to bear the third or fourth year. The fruit is medium to large ; color a bright vermillion red, not ripening all at once, but covering about two weeks ; season, with us, last of July to middle of August; hardy.

Notes and Comments

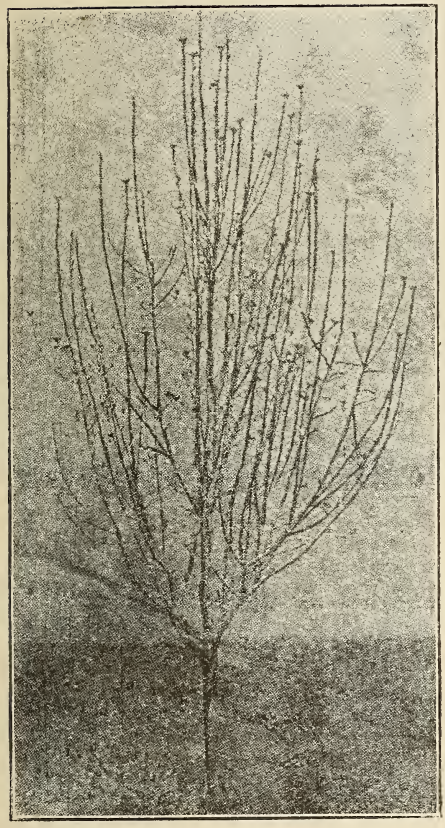


Fig. 2516. Kieffer Pear Tree, Unpruned.

PRUNING KIEFFER PEARS AND JAPAN PLUMS

THE very rapid growth of the Kieffer pear tree renders heroic pruning necessary, otherwise we would have such a mass of wood as to render the tree useless. Many of our most progressive fruit growers cut the wood back most severely, especially during the first five or six years of its growth, first thinning the number of its branches, and then cutting the remaining ones back from one half to two-thirds of their growth each year. Fig. 2516, from the American Agriculturist, is a very good representation of a Kieffer tree untrimmed, and fig. 2517 of a Kieffer after being thoroughly pruned.

Wickson and Abundance plums have much the same habit of growth as the Kieffer pear, and, in our opinion, need a similar method of pruning ; otherwise the young growth will in time be out of all reach, and the branches too long and willowy ; but the Burbank is a great sprawler, and of crooked, rampant, tangled habit. This plum needs close shortening in to keep it within any possible bounds.

Fig. 2517. Kieffer, Pruned.

FALL PLANTED TREES SHOULD BE CUT BACK.

OF late some have advocated leaving the branches uncut on newly planted trees. This we count a mistake, both from theory and experience. Evaporation takes place from a tree most rapidly from the leaves in summer, and it also continues, though in a much lesser degree, from the wood of its branches all through the winter. A tree that is growing renews the supply from water in the soil, but a newly planted tree is not yet able to do this rapidly enough, unless the wood surface is much lessened by pruning, and the colder the air the more it draws upon the moisture of the tree wood.

Peach, plum and cherry trees are much more inclined to lose moisture rapidly than apple trees, and hence need much closer pruning when set.

For this reason it is usually found unsafe to plant trees in the fall in Ontario ; the cold of winter robs them of moisture and consequently of their vitality so rapidly during the time between setting and the spring time, when the rootlets begin to act in supplying moisture, that they are usually much stunted for the first season, if not entirely killed. For these reasons we are advocates of spring planting of trees of all kinds in Ontario, rather than autumn. There is plenty of work in the autumn ploughing and laying out the ground, and getting it in readiness for setting the trees in spring, when, if they come fresh from the nursery ground, with no exposure to dry them, they should continue growing as if they had never been moved.

A SPRAYING OUTFIT.

THE increasing necessity of thorough spraying, year after year, renders it most necessary that we prepare the best apparatus for the work. We have evils enough already to fight in codling moth, apple scab, etc., but Mr. G. E. Fisher, San Jose Scale Inspector, warned us at Walkerton that this worst of all evils was spreading rapidly in districts where it has a footing, and that almost every possible means helps its spread, as birds and insects and even the wind. Cold does not prevent its growth, nor check its spread, for in Minneapolis it is known to thrive with a temperature 40° below zero. Fortunately we have in the lime and sulphur treatment, a cheap, effective, safe and easily applied remedy.

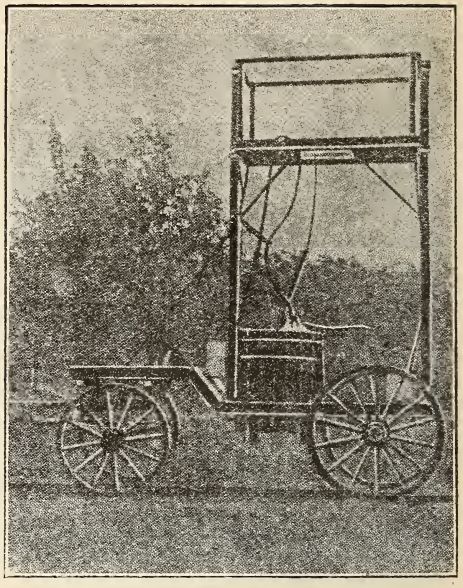


FIG. 2518. A WELL-BUILT SPRAYING OUTFIT.

Our worthy exchange, the American Agriculturist, gives the accompanying illustration of a well built spraying outfit with the following remarks :

For spraying large trees a platform above the bed of the ordinary wagon is needed. The tops of the trees can be reached with extension rods to which the hose is attached, but such spraying is not satisfactory. Best results are obtained where the spray is

FIG. 2519. THE FRUIT TABLES AT WALKERTON.

directed into the tree from above. A platform can be easily constructed on the bed of a wagon, where only a few trees are to be sprayed.

For large orchards and where several sprayings are necessary, an outfit such as shown in the illustration will be very useful. It was made and is used regularly by a successful fruit grower. The construction is such that the front wheels can be turned short without coming in contact with the frame. The tank holds several barrels of materials. The railings around the top are strong, so that operators will not fall off by frequent starting and stopping.

THE WALKERTON MEETING.

ALTHOUGH removed a long way from the Capital of Ontario, Walkerton has proved itself a place well worthy of the trouble and expense of an annual meeting.

Promptly at 8 o'clock, on Monday evening, Dec. 2nd, President G. C. Caston called he meeting to order, and after welcome addresses from local gentlemen, gave his annual address, in which he summed up the history of our Association, and indicated work for the future. Addresses were also given by Mr. R. M. Palmer, Horticulturist, of British Columbia, Mr. C. C. James, Deputy Minister of Agriculture, Toronto, and Prof. Hutt, of the O. A. C., Guelph.

THE FRUIT TABLES.

At our Walkerton meeting the fruit exhibit was a special feature. The tables were placed in the basement of the Town Hall, where the air was cool, and attracted many visitors. For the first time our experimenters were invited to contribute experiment station exhibits, and their collections formed a very important part of the exhibit. Even Mr. Charles Young, our experimenter for Algoma, sent down eleven varieties of apples, some of them very fine samples. In addition to his collection of grapes, Mr. M. Pettit, of Winona, showed an immense specimen of the Northern Spy

FIG. 2520. THE FRUIT TABLES AT WALKERTON.

Apple, possibly the largest ever grown in Ontario. It's weight was twenty-four ounces and it measured 14¾ inches in circumference. Mr. E. Morris, our director at Fonthill, showed a fine assortment of varieties of apples, among which we noticed the Huntsman's Favorite, an apple grown largely in Illinois, and much in demand in the Illinois markets where it brings double the price per barrel got for Ben Davis. It is large, dark red in color, and of excellent quality. We propose to have it under test at our fruit stations.

The exhibit of British Columbia apples made by Mr. R. M. Palmer, of British Columbia, was also most remarkable, setting before us an example of the perfect samples which we must grow if we would receive the highest prices.

FLORICULTURE.

AN interesting innovation in connection with our annual meeting this year was the division of the programme into two separate sections, both going on at the same time. The large Council Chamber was set apart for the consideration and discussion of topics belonging to floriculture, and every session was crowded to the full capacity of the hall. These sessions were presided over by Mr. T. H. Race, of Mitchell, and papers or addresses were given by a number of noted florists as well as a talk on roses and rose culture by Mr. Race himself. Among those who contributed to the interest o these floral meetings were Mr. J. S. Scarf, of Woodstock, Mr. R. B. Whyte, of Ottawa, Major Suelgrove, of Cobourg, Mr. C. L. Stephens, of Orillia, Prof. Hutt, of Guelph, and Dr. Fletcher, of Ottawa. These meetings seemed especially interesting to the townspeople, who thronged the hall at every session, and took an active part in all the discussions. A considerable demand was made upon the chairman for information on roses, and we may look for a large expansion in the cultivation of that queen of flowers in the pretty town of Walkerton in the near future. A hearty appreciation and

commendation of the innovation was expressed at the close of the last session in a motion by Rev. Mr. Robinson, of the Church of England, seconded by Judge Cline, President of the Walkerton Horticultural Society.

To this Horticultural Section many delegates were sent from affiliated Horticultural Societies, and we predict that this department will so increase in interest that no Horticultural Society in the province can afford to be unrepresented.

SOME EXCEPTIONAL PROFITS IN FRUIT GROWING.

MR. W. T. MACOUN, Horticulturist of the Experimental Farm, Ottawa, reported that he had put up some of the finest of his Wealthy and McIntosh Red apples, and forwarded them to Glasgow in bushel boxes on the 3rd of October, and, even on consignment, he had netted $1.00 a box, which was much better than he had done in any Ontario market. The writer reported on 100 cases of Kings he had shipped at the same time to Glasgow on consignment, and which had netted $100.30; and also on 117 cases of Blenheims, forwarded from Beamsville, which had netted $134!

Mr. D. J. McKinnon reported upon 83 apple trees on two acres of land, mostly Spys and Baldwins, which this year netted him $500, or $250 an acre. Such returns from the apple crop must have hit sorely upon those men, who, in recent years, became disgusted with apple growing, and all too hastily dug out the trees, root and branch; trees which had cost perhaps twenty years of cultivation and great outlay of money.

Mr. E. B. Stevenson, Jordan, our Strawberry expert, clapped the climax when he reported upon an acre of ground planted in 1900 to Clyde and Williams strawberry plants, which yielded in 1901 600 crates, or 14,400 quarts of berries, averaging net five cents each, or $700; and in 1902 500 crates, or 12,000 quarts, which, at five cents each, gave $600. He also gave another instance of a man at Jordan who purchased three acres of new land, planted the plot to Williams, Clyde and Michel strawberry plants, and took off it 1,200 crates of berries in 1901, and cleared $1,100 in cash.

Of course these exceptional profits must not mislead our readers; they are here noted simply to show what can be done by pluck, plod and perseverance, in almost any line of horticulture.

BRIGHT PROSPECTS.

THE near markets are the ones to be worked for these rich returns and not the distant ones, which eat up all the profit in expenses. There is scarcely a town in Ontario, of 1000 inhabitants, which will not give similar profits to the market gardener who will grow a full assortment of fruit and vegetables, and make a tri-weekly round from house to house, with an attractive display upon his wagon.

The great north and north west markets also should be most encouraging to Ontario fruit growers. The millions of acres to the north of the C. P. R., said Mr. C. C. James, Deputy Minister of Agriculture, in his address, will soon be settled with a large population, who will be hungry for our apples, peaches, pears and grapes; and no doubt the export of our fruit to Great Britain will by and by sink into insignificance compared with the demand in the northern and western markets for our fruits. With this great future before us, how evident is the importance of the great educational campaign which this Association has undertaken, through its Secretary, Mr. G. C. Creelman, who has organized local fruit growers' associations in every section, and is sending experts to give instruction regarding the best varieties of fruit, the best methods of cultivating them, and the best way to market them.

BETTER METHODS OF FRUIT SALES NEEDED.

WITHOUT doubt the methods by which the Ontario fruit grower rids himself of his fruit and his profits also, is most recklèss. No more haphazard method could well be adopted than is usual, by which unequal quantities are poured into our various markets, without any regard to the needs of that market, and the sale of them forced at once upon arrival. The buyers in such cases divide the spoils, take the fruit at their own prices and retail it at an enormous advance. The poor fruit grower is quite in the dark, he knows nothing of the sacrifice of his fruit until the robbery is completed, and he receives a sales account that staggers him, accompanied by a cheque that perhaps barely covers his expenses.

"I am surprised at your method of selling fruit," said Mr. R. M. Palmer of Victoria, B. C., at our meeting at Walkerton. "You are simply giving away your fruit and ruining the markets both for yourselves and other people. In Winnipeg, when our British Columbia fruit, sold by contract, meets yours shipped on consignment, we we simply stop shipping, knowing that the fruit will henceforth be at the mercy of the buyers who will get it at their own prices. All your debates about lower transportation rates are futile under your present methods of sale," said Mr. Palmer, "for every cent you save in freights will go into the pockets of the consignees, and the poor fruit growers will be no better off."

THE REMEDY.

THE exhibit of British Columbia apples at our Walkerton meeting was certaingly wonderful; they were so large and well colored. There were sixteen bushel boxes of them, and the principal varieties were Spy, Hubbardston, Vandevere, Ben Davis, Spitzenburg and Alexander. Some one asked Mr. Palmer how his people managed the sale of their apples. "One thing is certain," he said, "we do not ship on consignment. We pack our apples in California apple boxes, each sample wrapped in paper, and sell it only on order from buyers in the Northwest." At what prices? we inquired, for we had very vivid recollections of intense disappointment over some wretched returns for boxes we had forwarded on consignment.

"Well, we get orders all the way from Winnipeg, at $1.25 a box f. o. b. at Victoria; and even at such prices, the buyers are more anxious to buy than growers are to sell."

This led us to ask ourselves, why hurry our fine high grade Spy apples upon an already glutted market, when in proper storage we can hold them six months, and take our time finding buyers. Why in the world can not we, who wish to pack high grade apples, write and invite English and German buyers to purchase on sample? We resolved to try the experiment by holding in storage at Montreal 1000 bushel boxes of the choicest apples, with which to test the British buyer next May, and perhaps we can induce him to buy from us f. o. b. at Montreal. Anything is better than the fearful uncertainty which now attends a sale of a carload of our choicest fruit, when it is forwarded blindly to some consignee, who may already, for all we know, be much overstocked.

MARKETS AND MARKETING.

"SELLING on consignment," said Mr. D. J. McKinnon, of Grimsby, "is a good enough way for the careless fruit grower, who will not thin his fruit, fertilize his soil, spray for insects and fungi, nor grade or pack as he ought to do. But some of us want to know how we can make the most of our fruit. There are several methods of sale: (1) *You can sell your orchard in bulk*, an easy way, certainly, probably the easiest: (2) *You can ship on commission*, an easy way too, but often very disappointing; for, very often you pay a commission

to your merchant, and he, finding he has too much fruit, pays a sub-commission to another for assistance in the sale, at the growers' loss : (3) *You can sell to a jobber*, which is often quite satisfactory, and (4) *You can make retail sales all over the country.* This last is the best if you can manage it, but it is a great deal of trouble, and you cannot do it unless you have a great quantity of fruit, and buy largely to fill your orders.

A STANDARD APPLE BOX NEEDED

I THINK, continued Mr. McKinnon, that we need, not only a standard apple box for export, but we also need legislation preventing the use of the box for anything but No. 1 fruit.

To this Mr. Palmer objected, because, said he, we never use barrels at all in British Columbia, we ship everything in boxes. Well then, said Mr. McKinnon, let it be illegal to use a box printed with red ink for anything but No. 1 apples, and let black ink be used for all cases containing ordinary fruit. The matter of legislation on this point was laid over for a year, but the report of a committee on a standard box was adopted, advising the use of California sizes for Ontario fruit packages, as far as practicable; and also suggesting for 1903 the use of an apple box, measuring 9 inches deep, 12 inches wide, and 18 inches long. This box was favored by Burlington and Grimsby fruit growers, because it would hold ¼ of a barrel, an accepted size in foreign markets.

The Grimsby shippers complained that they found themselves losing money by using a box which measured ⅓ of a barrel, when the price in Covent Garden was set by the quarter barrel box.

I know not whether British Columbia fruit men will accept your proposed apple box or not, said Mr. Palmer. They use several sizes at present, but the Standard apple box with them measures 10½ inches deep, 11½ wide and 18 long ; and the Special apple box for smaller sized apples, measures 10 x 11 x 20.

TENDER FRUITS SAFE IN PROPER COLD STORAGE.

GIVEN cold storage on land and sea that will keep our fruit just above the freezing point, it will doubtless be quite safe to hold our fruit for a fixed price which will fairly represent its real value, instead of allowing it to be sold for a song because of its perishability.

"Yes," said Mr. Fisher of Burlington, "there is a rub. Half the time we do not get an evenly low temperature on ship board. Our Burlington fruit growers sent a car load of Bartlett pears to Manchester this summer, on the Manchester Commerce, and a large portion were spoiled on the way. I got a copy of the thermograph record, and it showed a variation all the way from 68 to 30 ; 'cooked or frozen' is surely applicable to such conditions. Bartlett pears will not stand such extremes of temperature."

The writer reported that his shipments of Bartletts this season to Glasgow by the Donaldson line were carried in excellent condition. Our confidence in a well regulated cold storage was still farther increased by an exhibit of Duchess apples on the fruit tables by Mr. W. H. Bunting of St. Catharines. The half cases, which had been packed on the 4th of August and held at about 40° F. for four months, were in fair condition at the date of the meeting, the 2nd of December.

REPORTS OF EXPERIMENTERS.

ON Tuesday morning Dr. Mills, Chairman of the Board of Control of our Fruit Stations, took charge of the sessions, and each experimenter was called upon to give notes on the most desirable varieties of his special fruit. There are now fourteen fruit stations and the reports are becoming more valuable each year.

APPLES.

HOW fortunate that each latitude has some fruit which succeeds in it better than anywhere else, and great good will result if our fruit stations discover those fruits which will bring the most profits to each section. Mr. Harold Jones of Maitland says that four varieties of apples are very profitable along the St. Lawrence River, viz.: *Fameuse*, *McIntosh Red*, *Wealthy* and *Crimson Pippin*, about in the order named. More money can be made from orchards of Fameuse than from any other crop in the district, providing scab is controlled by spraying. For the Ottawa valley Mr. MaCoun recommends McIntosh Red and Wealthy as first for market purposes, for they succeed perfectly and grow free from blemishes. "No one," said Mr. R. B. Whyte of Ottawa, "need think of planting Spy, Baldwin, King or Greening along the Ottawa, for they cannot be grown."

Mr. A. D. Harkness of Irena, stated that this year he had received for his McIntosh Red and Fameuse from $3.25 to $3.50 per barrel in the Ottawa market.

Mr. G. C. Caston, of Craighurst, showed a large number of varieties of apples. "I have tried," said he, "quite a collection of commercial varieties in Simcoe County, and find nothing superior to the Spy. I consider it the hope of apple growers in my district, for it excels every other variety, both in appearance and in quality. True it is very long in coming into bearing, but it is 'worth waiting for.' Besides if you top work it on Tolman Sweet, it will bear sooner than if worked on other stock.

"The Russian apples I find to be mostly summer varieties, the *Bogdanoff* perhaps comes the nearest to a winter apple. We cannot grow the Fameuse, nor the McIntosh Red, nor the Baxter, on account of scab. The *Peerless*, which I got from Minnesota in 1895, bore this year an average of a half bushel each tree. It is a seedling of Duchess, which it somewhat resembles; it is a good cooker, but it is a fall apple."

"I have about three hundred varieties of apples in my experimental orchard," said Mr. Dempsey, who is experimenter for the Bay of Quinte district, "one half of which have been added since 1894. For the Bay of Quinte region I would advise planting Duchess, Trenton, Gravenstein, Fameuse and McIntosh for summer and fall; and Spy, Ontario, Stark, Hubbardston, Seek, Cranberry and Ben Davis for winter.

"In the southernmost sections of the province the winter would adopt the following list, in order of ripening. viz.: Transparent, Duchess, Alexander, Gravenstein, Blenheim, King, Baldwin, Spy and Roxbury Russett."

PLUMS.

MR. HAROLD JONES is testing plums which may prove suitable for the St. Lawrence district. He has not found any of the old English kinds (Domestica) to be hardy, and has now concluded to test only native stock. He mentioned four kinds which he had tried, and in which he had placed much confidence, viz.: Milton, Whittaker, Hammer and Forest Rose.

PEACHES.

THE day of extraordinary prices for peaches grown north of the peach belts seems to be rapidly passing; for in cold storage, this tender fruit may be sent to us from distant American orchards and fill our markets. There are very few parts in Ontario in which a peach will thrive with any kind of certainty; even in Essex, that part of Ontario considered especially fitted for peach culture, hundreds of acres of peach trees were winter killed by an exceptional winter, and much discouragement has resulted. Mr. Hilborn, our experimenter of Essex, gave a list of his favorite varieties, as follows: Triumph, Greensboro, Yellow St. John, Garfield, Early Crawford, Fitz-

gerald, Engol, Elberta, Golden Drop, Smock, and Salway.

"Suppose" said Dr. Mills, "you were confined to six varieties, which would you select?" "I would take St. John, Garfield, Fitzgerald, Engol, Elberta and Smock," said Mr. Hilborn.

We suggested the Sneed, for extra early. It ripens at Maplehurst about the middle of July, quite in advance of any other variety, and although a cling, and of no great merit comparatively, still it has no competitor of its season, that is grown in Canada.

RASPBERRIES FOR SUCCESSION.

WHEN it came to raspberries, we found in Mr. Sherrington, of Walkerton, a man whose experience as an experimenter was most valuable, especially for people in the Lake Huron district, for he has tested about sixty-five varieties. Having grounds somewhat limited in extent, he has used raspberries as fillers between the rows. He plants three rows, six feet apart, and nine feet from the apple tree rows on each side, which are thirty feet apart. Then in these rows he plants six currant bushes between every two apple trees, giving room to cultivate a large space about each tree. He grows the berries on the hedge row plan, cutting out all old wood in the fall and giving the ground a coat of barn yard manure and ashes.

What are your best varieties for profit? we inquired.

Well, if you mean table berries for the home trade in Walkerton, the following are the best EARLY ONES:

(1) *Reliance*, which is hardy, fairly vigorous, and fairly productive.

(2) *Turner*, the hardiest of all, fairly vigorous, splendid for the home table.

(3) *Marlboro*, a fairly productive, a little tender, a good shipper, but considered too dry for home table.

MEDIUM AND LATE—*Cuthbert*, queen of all red berries, the very best red.

Phœnix, hardy and more productive even than Cuthbert.

Loudon produces enough canes.

"I do not care," said he, "for the purple varieties, such as Shaffer and Columbia. "I differ with you there," said F. Metcalfe, of Blyth, "I have grown Columbia most successfully, and have found it very profitable."

So we find that doctors often disagree.

CURRRANTS.

PROBABLY no fruit is so suitable for an orchard filler as the currant, for it ripens in the shade of the trees, and seems to rob the ground of very little substance. At Maplehurst we have grown it in this way for twenty-five years, and have found it very profitable until the last few years. Now the demand for it is increasing again, and why should it not, for of all fruits it is one of the most wholesome; and for pies or jelly, the fruit is more appetising.

Our favorite had always been the Cherry, though the Fay was about its equal, so we were interested in Mr. Peart's list of most profitable varieties. He places the *Wilder* at the head of his list. "I prefer it myself," said he to any other. It is large, of fine quality, while the plant is productive, and its only fault is its susceptibility to leaf blight, late in July. Of other varieties I commend the Cherry, Pomona, Fay and Red Victoria.

GRAPES.

MANY new varieties of Grapes have proved useless, said Mr. M. Pettit, our experimenter at Winona, who has tested abont 150 varieties of Grapes, and out of them all has one dozen kinds which he can recommend as really of value for the commercial vineyard.

The *Alice* is one of the most recent intro-

ductions, and in his opinion it is nothing but the old Diana resurrected.

Campbell's Early is worth planting because it is so early, and there is nothing better in its season. It is not as productive as Champion, but of course Champion is too poor a grape for any purpose; and in quality Campbell is superior to Moore's Early. *Brighton* is too tender for shipment, and *Eaton* is a large black soft grape of poor flavor; *Moore's Early* does not make enough wood, and consequently is not sufficiently productive. *Early Dawn* is a good wine grape. A good list of shipping grapes, said Mr. Pettit, is the following:

Worden, Moore's Diamond, Lindley, Delaware, Niagara, Catawba and Vergennes. "I think very highly of the Vergennes for winter use," said Mr. Orr, who was making a fine display of them on the fruit tables. "I have about half a ton of them in my cellar, for the use of my family and their friends during the winter. They are one of the best keeping varieties."

STRAWBERRIES FOR SUCCESSION.

IT was a splendid opportunity to take notes of varieties for spring planting, with so many of our fruit experimenters present, and almost for the first time we were privileged to question our strawberry specialist, Mr. E. B. Stevenson, of Jordan, so long known among us as the best Canadian authority on this delicious fruit. His list of commercial varieties was as follows: *Early;* Michel, Vandeman, Monitor, Beder Wood and Clyde: *Medium and Late;* Haverland, Tennessee Prolific, Saunders, Glen Mary, Sample, Brandywine: *Very late;* Aroma, Hunn, Gandy, Joe.

NEW FRUITS.

PROF. H. L. HUTT, Chairman of the "New Fruits Committee," presented the report of the committee which recorded the receipt of a large number of samples of fruits during the season, some of which were sent to himself at the College, Guelph, some to Mr. W. T. Macoun, at Ottawa, and some to Mr. L. Woolverton, editor of this journal, Grimsby.

Many of these were declared to be no better than varieties already in cultivation, but there were a few which were esteemed promising. An attempt will be made to secure the latter for testing at the fruit stations, for from among our native seedlings there will no doubt arise the varieties best adapted to our country. The following are some fruits reported as "promising."

PEARS—Bemans Seedling.

PLUMS—(from Central Experimental Farm) Consul, a seedling of Wolf, yellow in skin and flesh, juicy and good, September to October. Sunrise, seedling of de Soto, yellow, with more or less bright red, flesh yellow, juicy and sweet.

PEACHES—About thirty seedlings were grown about Guelph, some of which developed considerable hardiness, and from these seedlings are being raised by Professor Hutt with a view to producing varieties still more hardy.

CURRANTS—A new black currant, originated by Dr. Saunders, has proved of considerable value, and has been named the Topsy.

CRAB-APPLES—Of these five new seedlings Dr. Saunders are of considerable value for northern sections, viz., *Prince*, *Tony*, *Alberta* and *Elsie*.

GOOSEBERRIES—Several interesting seedlings were raised by Mr. Stephens, of Orillia; and in raspberries the Herbert, a new variety of great promise, has been recently offered for sale by Mr. R. B. Whyte, our director at Ottawa.

PROFIT IN TOMATOES.

THERE was not much talk about tomato growing profit, but Mr. Peart reported on the *Honor Bright* as a good variety for export.

This year he had made a shipment to Great Britain, and had received as high as 6s. a bushel box for them, which was quite satisfactory. For the home markets there seems to be very little money in growing tomatoes unless they are very early. Many growers make contracts with the canning factories for their crops, with permission to ship the early ripe fruit, up to a certain date, after which all are to go to the factory, which is a very fair bargain. The contract price so far has been 20 cents a bushel, but, owing to the advance in the canned goods, the factories in the Niagara district are already offering 25 cents a bushel for the crop in 1903. This should pay the grower, when one considers that there is no commission, baskets or express charges to pay.

APRICOT AND OTHER FRUIT PULP.

SIR,—In consequence of an enquiry which I made as to why apricots were not grown more extensively in Canada, Professor Saunders sent me last June a letter containing an extract from a report which you had made on the subject which terminated with the statement that you were conducting further experiments

Mr. MacKinnon, Chief of Fruit Division, was here a couple of days ago, and in the course of conversation he mentioned also that he had during his visit here been struck with the large number of apricots, and how advantageous to Canadian fruit growers the increased production of this fruit would be. You are aware that apricots are imported just as fresh fruit, also as pulp for jam making, dried and canned.

I shall be interested to learn the results of your further experiments, and this is my reason for writing to you.

HARRISON WEIR,
Curator Canadian Section Imperial Institute,
London, England.

At Maplehurst we have been trying to grow apricots on our sandy loam for nine years past. We planted every variety offered by the nurseries, but have had no fruit to speak of all these years. One explanation seems to be their early blossoming, which exposes them to injury from spring frosts ; and another is the ravages of the curculio, which usually causes all their fruit to drop before maturity. About twelve years ago we planted a dozen Russian apricots, but every one has proved worthless.

Unless therefore the soil or climatic conditions elsewhere bring about results different from ours at Maplehurst, we can encourage no one to undertake apricot growing for profit.

If there were a demand at paying prices for peach or raspberry pulp we could see business ahead, but experiments already tried by a committee of our Association of which Mr. Boulter, of the Picton Canning Factory, was the chief experimenter, discourage that enterprise, because the prices were not remunerative.

California is undertaking the export of all kinds of fruit pulp in rectangular bricks made by "boiling down the fruit pulp to a sugar until the desired consistency is reached when the mixture is poured into pans, and permitted to dry slowly for ten hours," being eventually cut in bricks and done up in waxed tissue paper. Strawberry pulp in cans is much in demand for flavoring of ices and soda water.

FRUIT INSPECTOR'S REPORT.

THE Fruit Division at Ottawa is rendering good service to fruit growers by reporting to them upon the sales in Great Britain, and upon its condition on arrival. For example we have just received following, dated Glasgow, Nov. 17th, regarding fruit ex SS. Lakonia :

"H. Gordon Ball, Niagara, Ontario.—15 cases King Pippins. These were without exception the most perfect and finest lot of apples which have come here this season ; every apple was wrapped separately in paper, and each case was perfection from top to bottom. Unfortunately, the lids of the cases were only of ⅛ inch wood, which allowed of easy access to the contents. It seemed incredible that the packer of such apples should send the boxes away with such poor lids."

"L. Woolverton.—150 cases apples, Greening and Russets XX 3/6, 4/--; Cranberry Pippins, good XXX 5/6, 6/--, XX 4/--, 5/--.

"A. Block.—Californian Pears, all in perfect condition; varieties principally Winter Nelis and Glout Morceau. These made 7/6 to 8/6."

THE TALLMAN SWEET AS A STOCK FOR GRAFTING.

SIR,—Is Tallman Sweet the best stock to top graft on, and does top grafting any species shorten the time at which the tree comes into bearing?

When you get Tallman Sweet trees from nurserymen for spring planting can you graft immediately they are planted or must you let them grow for a year?

Would two year old seedlings from Tallman Sweet seed do as well as purchasing from nurserymen?

Is there any data or do you know at what age would the following kinds come into bearing if top grafted on young Tallman Sweet trees, viz., Spy, Baldwin, King, McIntosh, Gravenstein, Astrachan and Blenheim.

Is there any of the above trees that should not be grafted as above? An answer would oblige.

Toronto. C. L.

The influence of the stock upon the cion has been often observed, especially is it noticeable where the free growing pear cion is grafted upon the quince; for the growth of the pear wood is thereby checked, and the strength of the tree is diverted into the formation of fruit buds, and into the production of large sized fruit.

Mr. Geo. T. Powell, of New York State, reports that he has some King apple trees top grafted upon Northern Spy. The former has coarse grained wood and is a rapid grower, while the wood of the latter is very close grained and very solid. He found the King in this case more productive than when grafted on other wood. Mr. G. C. Caston, of Craighurst, Ont., reports having top grafted Spy cions on Tallman Sweet trees; and that the Spy, usually so long coming into bearing, began to be productive sooner than when grafted on ordinary seedling stock. Nurserymen seldom take this subject into consideration in propagating trees, because it would be inconvenient in a large way. It seems however reasonable to suppose that if they could secure seeds from the pumice of Tallman Sweet in sufficient quantity to use in propagation of young stock it might give excellent results. Of course any one, who pleases, can grow young trees by sowing seed of Tallman Sweet apples, and perhaps a large number of the seedlings would have the wood characteristics of the plant, but on this one cannot fully depend.

If you buy Tallman Sweet trees for top working, it is better to let them grow a year or two, and get well established before top working them.

We cannot say just how soon such trees would begin bearing, so much depends upon tillage, kind of soil, and various other conditions; we have an orchard of Spys on ordinary stock, and it was twenty years before we had paying crops from it. Also we have an orchard of King apple trees on ordinary stock which are now about forty years planted, and have grown to a height of about thirty feet, and they do not give a full crop of apples more than once in four years. Of course the apples are very large, and high priced, but this scarcely makes up for their slim crops.

REPORT OF THE SECRETARY REVIEWING THE WORK OF THE PAST YEAR.

THE Ontario Fruit Growers' Association is the oldest Society in affiliation with the Department of Agriculture. But age here is no indication of lessened energy or halting progress. For a number of years good educational work has been done by this association, and some distinct advances have been made during the past twelve months.

LOCAL FRUIT GROWERS' ASSOCIATIONS.

These were organized last spring by delegates sent out by the department under the auspices of the association. It was found that the Horticultural Societies of our towns and cities operating under the Agricultural Arts Act did not apply thoroughly to practical fruit growing conditions. Their work has been devoted to floriculture and along the lines of civic improvement. Fifty-one such fruit meetings were held, the programme being to meet in a suitable hall, then to adjourning to an orchard for a practical demonstration of pruning, grafting, etc. At night a general meeting was called when the organization was completed and officers were elected. As a result of these meetings thirty-six local organizations were formed reaching all the way from Iroquois on the St. Lawrence to Leamington in Essex County.

FRUIT INSTITUTES.

The work of our Farmers' Institutes system, which formerly applied to dairymen, stockmen, fruit growers, and farmers as a whole, has been gradually divided into separate departments, so that the sections of the country engaged almost entirely in one branch of Agriculture may receive special attention along that line. When it was decided to organize Local Fruit Growers' Associations, we took advantage of the Farmers' Institute machinery and solicited the co-operation of its officers, and through their co-operation and help in the matter of funds, we were enabled to hold a great number of these Fruit Institutes or practical orchard meetings.

PRUNING DEMONSTRATIONS.

At these meetings the Delegates gave a talk on the necessity for good pruning and then proceeded to show how it should be done. In almost every case this method provoked a lively and practical discussion which was especially appreciated by the farmer boys.

THINNING FRUIT.

Still later in the season when the fruit was pretty well advanced a request was made for orchard meetings in the apple sections, for instruction in summer orchard management and the thinning of fruit. Here again the Dominion Fruit Inspectors helped us out, and that they did good work is evidenced by the many complimentary letters from farmers who had received the instruction. These meetings lasted from July 22nd to 31st.

OBJECT LESSON IN SPRAYING.

Following up the orchard meetings, we arranged for demonstrations in spraying and twenty meetings were held. The Secretary of the Local Fruit Growers' Association made all arrangements, supplied spray pump and the materials for the Bordeaux mixture and selected an orchard for the work. These meetings commenced at Whitby and extended as far as Iroquois.

SPRAYING FOR THE SAN JOSE SCALE.

The San Jose Scale commission in their report to the Minister of Agriculture last month recommended the use of lime and sulphur for the winter treatment of the scale.

The difficulty, however, seems to be in cooking of the sulphur. The Inspector reported that he had good results from using the steam of a threshing engine, and in this way the lime and sulphur mixture could be prepared on a large scale at a comparatively low cost. It was then arranged to hold practical demonstrations in the preparing and applying of the mixture in the affected districts. The following places of infestation were selected, namely: St. Catharines, Niagara, Grimsby, Blenheim, Kingsville. Two have been held and were most successful. The meeting at Grimsby is to be held this week. The latter two will be arranged for between now and the first of the year. We are endeavoring to take the result of the scientists to the farm and to the people.

FRUIT EXPERIMENT STATIONS.

In our orchard demonstrations work we found we could make our work still more valuable to the people by having the annual meeting of the Farmers' Institutes take the form of a basket picnic on the grounds of the local Fruit Experiment Stations. In this way the different varieties under cultivation could be seen growing side by side, and it could be easily seen which were the best varieties to grow for market or home purposes. To make the work still more valuable we were assisted by some of the professors of the Agricultural College, who gave addresses and answered questions in reference to the growing of fruit, the destruction of insects, fungous diseases, etc. Scores of letters have been received at our office telling of the practical benefit of the meetings. Our Experimenter should be the authority in each district as to what to plant, and what and when to graft, prune and spray. If the Fruit Growers' Association by the methods already started, and by other means, can bring the fruit farmers in touch with the Experiment Stations we believe it will do as much for the industry as can be accomplished in any other way.

JUDGING AT FALL FAIRS.

During the past fall fair campaign we have been asked through our office, for many judges of fruit and flowers at the exhibitions. This resulted from correspondence we had last spring with the agricultural and horticultural societies in reference to the improvement of their prize lists. A committee of this association met in Toronto last spring, and at the request of the Canadian Association of Fairs and Exhibitions prepared a model prize list for the use of fair boards. We are pleased to note that a number of our directors were selected as judges by the fair boards this year. This is another evidence of the hold which our association is getting upon the people of the province.

APPLE GRADING AND PACKING AT FALL FAIRS.

Practical demonstrations in grading and packing of fruit were given at many of our fall fairs. Here again the Association is indebted to the Dominion Fruit Inspectors for their services. Wherever they went they were surrounded by enquiring fruit growers, and questions were asked on all phases of the work, and the demonstrations were watched and criticised by the eager onlookers.

HORTICULTURAL SOCIETIES.

Many of these Societies are doing first class work in floriculture and town and village improvement. Last year the Superintendent of Farmers' Institutes was asked to arrange a lecture course for these Societies and this was done. It was also continued again this year, and the Societies have expressed their appreciation of the good work of the lectures. A pleasing feature of the work has been an afternoon meeting at the schools. This has been appreciated both by teachers and scholars, and has also helped to advertise the work of the Horticultural Societies.

HORTICULTURAL LITERATURE.

The Department of Agriculture has also issued two publications during the year which are of special interest to our members. The first is the Hand Book of Women's Institutes. This contains articles on floriculture which are practical and up-to-date. The second is just out, and is in line with the resolution passed by the association last year. It is entitled Nature Studies, and will be useful in the study of elementary science.

G. C. CREELMAN, Secretary.

Toronto.

FRUIT GROWING IN THE EARLY DAYS

AUTOBIOGRAPHY OF OUR PIONEER FRUIT GROWER, A. M. SMITH, OF ST. CATHARINES, WRITTEN BY REQUEST—ONE OF THE TWO LIVING CONSTITUENT MEMBERS OF OUR ASSOCIATION—CREATED AN HONORARY LIFE MEMBER AT BRANTFORD IN 1900, AND AN HONORARY DIRECTOR AT COBOURG IN 1901.

IF you think I have succeeded in any way in making the country more prosperous, or in making the people happier or better, and that my example and efforts will help others to strive to make Canada the brightest spot on the face of this great world we live, I shall have no objections to giving you a little of my history.

I was born in the town of Brandon, State of Vermont, on the side of the Green Mountains, Sept. 24th, 1832. My father was a farmer and a charcoal burner. When I was 12 years old he lost his farm and all the property he had through the failure of a firm he had a contract with for burning or making charcoal. He then went to Western New York, taking with him a family of six children, to "begin life anew," as he expressed it, working on a farm by the month for a year, and then working land on shares for a time, and finally purchasing a small farm to be paid for on time.

The early efforts of my life, from the age of 14 to 20, were to help pay for the farm and clear up a part of it, which was in bush. This was accomplished with the aid of an older brother, both us of working out by the day or month among neighboring farmers and we had the satisfaction of seeing my father have a comfortable home in his old age. The only chance I had for schooling was three months each winter, when I generally boarded with some farmer and did chores for my board and attended the district school; excepting six weeks after I was 20, which I spent at the Yates Academy, or High School.

I always had a fancy for fruit and fruit growing, and in the summer of 1852 I worked for Mr. E. Moody (father of the Moodys who now carry on an extensive nursery at Lockport, N. Y.) in his nurseries and peach orchards, where I obtained a knowledge of the nursery business before I embarked in it on my own hook. In the fall of that year I received a stroke of lightning, which killed the horse I was driving and laid me up for two years, six months of which I was in bed helpless. So the capital I had to start with when I was twenty-one years of age was, two years' sickness and $100 of a doctor's bill to pay. My father cared for me when I was sick and gave me a cow when I first went to house-

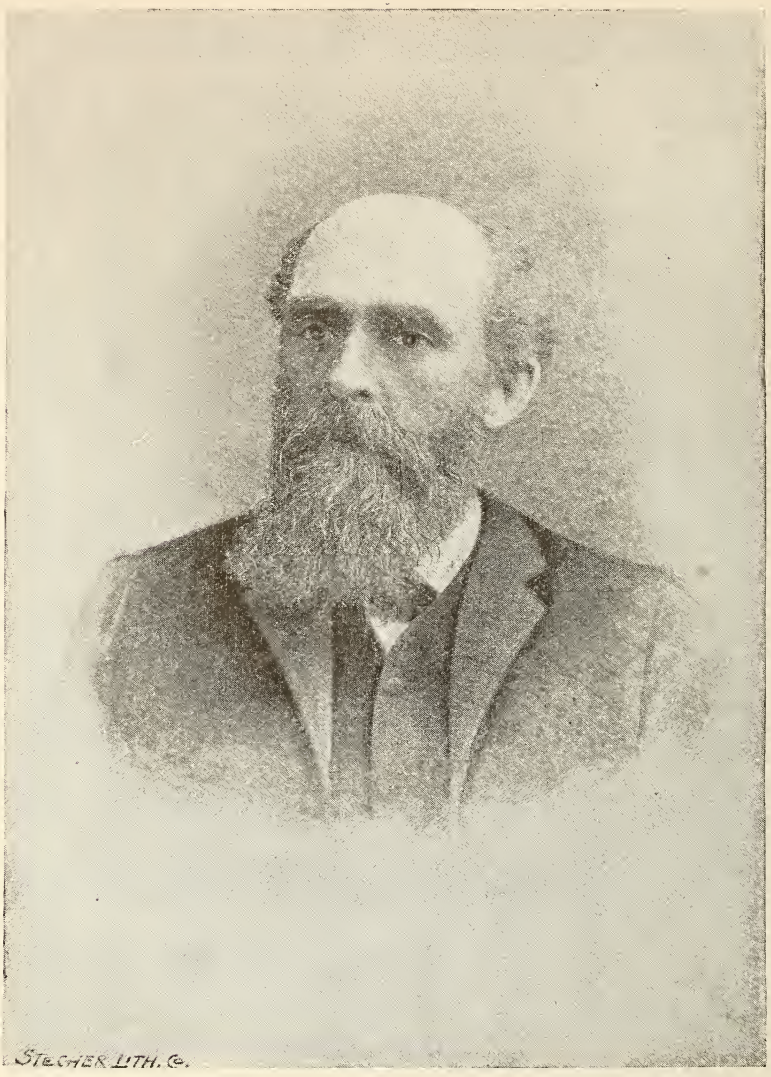


FIG. 2521. A. M. SMITH.

keeping, which was all he was able to do. My physicians had told me I never would be strong enough for hard work, but I was determined not to give up but to do something ; so I got me an old horse and secured an agency for an insurance company, and for selling books and trees and some other things, and I traveled the country, when I was able, for about two years. Gradually I gained my health and strength and paid off my debt. Having previously visited Grimsby and made up my mind that it would be a good location for the fruit and nursery business, I persuaded the late C. E. Woolverton, in the spring of 1856, to set apart a portion of his farm and embark in the business on a small scale. We planted about 600 peach trees in orchard and about 6,000 young apple trees and some pears, plums, cherries, etc., in nursery, in all about eight or ten thousand trees. Ours was the first peach orchard of any extent

planted in that part of Canada, though there were small nurseries at Hamilton and St. Catharines. Some of the old farmers of the neighborhood, among them Mr. Dennis Woolverton, the grandfather of the editor of this journal, and Mr. Andrew Pettit, the father of Mr. A. H. Pettit, tried to discourage us and wondered what we would do with all our peaches when they came in bearing. They also said that we never could dispose of eight or ten thousand fruit trees in Canada. But when our trees did bear, and we had an express service established from Grimsby to transport our fruit to northern towns and cities, they soon found we were making more off 8 to 10 acres of peaches and strawberries than they were from their 200 acre farms, to say nothing of our nursery business. After that so many of them went into peach growing, that Grimsby soon became known as the "Peach Garden of Canada." About this time I called attention of Curtis & Co., large fruit dealers in Boston, Mass., and some others, to our Canadian apples, and they sent buyers here who pronounced them the finest on the continent, and our apple trade began to boom, which was no detriment to the nursery business. As you know, a few of us started the Fruit Growers' Association in 1859, of which I have been a member ever since its beginning and attended most of its meetings, and I hope I have been instrumental in advancing its interests. I continued in the nursery business up to the year 1900 at Grimsby, Niagara Falls and St. Catharines—over 40 years—when I sold out, thinking the care of my small fruit farm at Port Dalhousie would be work enough for a man of "three score years and ten." I have never been able to lay up much of this world's goods, though I have a comfortable home. I have raised and helped to educate quite a large family, among them two graduates in medicine, who are now medical missionaries, and three trained nurses, and one who has been a successful school teacher, besides three who have not chosen their profession yet. I have raised and distributed a great many thousand trees through the country, but have never boomed or sold a variety which I did not think was of real value. My motto has been: "Give every man full value for his money."

VALUE OF AN APPLE TREE

I BELIEVE that it will not be generally disputed that a healthy bearing apple at ten years of age would be worth $25, that the value of the fruit from this tree will in that time have equalled $15, says Western Experiment Report. This certainly would be a very liberal return from the one-hundredth part of an acre, especially when we consider that under ordinary circumstances this tree will increase in value and productiveness for ten years longer, at least. In planting an orchard, the location and site need to be well considered. In regard to location; it is yet a matter of doubt if many varieties of tree fruits, except native plums, will succeed in the extreme north. In all other localities there need be no hesitation for planting. In selecting a site an elevated spot should probably be given preference, as the flower buds are less apt to be destroyed by late spring frosts than on lower land.

TILLAGE FOR THE ORCHARD

DIFFERENT CONDITIONS IN VARIOUS PARTS OF ONTARIO — PRECIPITATION IN SUMMER AND IN WINTER — WHY FRUIT GROWERS SHOULD CULTIVATE IN AUTUMN, WHY IN SPRING OR WHY IN SUMMER—THE FIRST OF A SERIES OF ARTICLES

BY

PROF. J. B. REYNOLDS,

OF O. A. C., GUELPH, ONT.

SPECIFIC directions for orchard cultivation, to apply to every fruit-growing section of Ontario, cannot be given. It must be borne in mind that Ontario is not a small country, and that within its borders it possesses wide variations of climate. From the eastern end of Ontario to the extreme west at Port Arthur, the annual rainfall diminishes by one-third. Generally the farther west of Ontario, the drier the climate, although this rule is subject to exceptions when lake-shore or river-counties are compared with inland counties. Therefore, since cultivation is becoming more and more a matter of conserving moisture, it is evident that the same method will be applied to different sections with different degrees of success. The methods of orchard cultivation that experience teaches to be the best at Ottawa, or along the St. Lawrence, may not do at all for western or inland sections.

The term 'rainfall' has been used. A term more suitable for our purpose is 'precipitation', which includes rainfall, snowfall, dew and all aqueous deposits from the atmosphere to the earth. With reference to the annual precipitation, here is an important question. Which part is of more value to the fruit-grower, that which falls in the autumn and winter—the inactive season—or the summer rains? At first thought, it may be supposed that the summer rains are of more value, since they come when they are most wanted. Yet, with some reservations, the opposite is the fact. The more valuable and necessary precipitations are those which occur during the inactive season. This is true for several reasons. First, the precipitation of the late fall and winter usually comes when the ground is prepared to receive and to retain it. Then, the winter's snow is conveniently slow in melting, and gives the land plenty of time to absorb it. There is frequently the equivalent of two or three inches of rain, in the form of snow, lying on the ground at one time and, on fairly level, well-prepared ground, little or none of this is lost when it melts. In the third place, the precipitation of the inactive season is usually quite sufficient to be effective, and to saturate the ground to a depth of three or four feet or more. At this period, also, there is little evaporation, and therefore but little loss of moisture from this direction.

On the other hand, what happens with the summer rain? A gentle soaking rain, lasting a whole day and amounting to one or two inches in depth, will likely penetrate the ground to a sufficient depth to reach the roots of the trees. But this is not the usual character of summer rains, which are often tantalizingly small in quantity and short in duration. A smart shower, lasting from twenty to thirty minutes, may penetrate two or three inches of an ordinary soil. The principal effect of such a shower is to compact the surface soil, destroy the mulch which the careful fruit-grower has maintained, and start evaporation of the moisture

previously in the soil. To restore the mulch and prevent this evaporation, the fruit-grower is compelled to start his cultivator going very soon after the shower.

Upon these considerations are based the principles and the practice of orchard cultivation. Granting the soundness of these conclusions, the fruit-grower will readily infer that he should have, for the conservation of moisture, two distinct objects in view at two distinct seasons of the year: he must cultivate in the autumn so as to prepare his land to receive and retain the precipitation of the late autumn and winter; and he must cultivate in the spring and summer so as to conserve the moisture that the soil has obsorbed during the inactive season. How these two objects are best attained will form the subject of the subsequent articles under this head.

FREIGHT RATES ON FRUITS

THE Fruit Growers convention at Walkerton has furnished another proof of the vital importance of the freight rate question to every productive industry. The railways are everywhere the link connecting producers with consumers, whether the markets served be domestic or foreign, and it is consequently an easy matter for any industry to be rendered unprofitable and thus crowded out by excessive freight charges. About a year ago the fruit growers carried on an energetic agitation in favor of a general reduction in freight charges, especially in the rates designed to establish distribution centres in Manitoba and the Northwest. One of the most serious causes of complaint was the grading of fruit as less than car lots when a fruit grower loaded a car with different varieties. The difference in the rate was sufficient to shut out many Ontario fruit growers from the western market, there being few dealers able to order an entire car of a single variety. There were also complaints as to discrimination designed to affect the course of trade and to favor certain western points as distributing centres. The decision of the fruit growers was at that time to the effect that little or no relief could be obtained until a railway commission was appointed, with authority to pronounce as to the fairness of freight rates and to determine all disputed points between the railway and their patrons. The convention at Walkerton has reiterated that view. The resolution adopted on motion of Mr. W. H. Bunting, of St. Catharines, declared the belief of the convention that freight rates would not be placed on an equitable basis until a railway commission was appointed, with authority to go from point to point, investigate grievances and publish reports setting forth the facts disclosed. Delegates were appointed to wait upon the Government and co-operate with the farmers' associations and other organizations in urging the appointment of a railway commission.

The discussion on the resolution did not bring out any divergent views, although it served to disclose a wide variety of complaints. One member complained that railways would not give rates to competing points without consulting their competitors. This would indicate a rather close combination or working agreement to maintain charges at the endurance level. A complaint, apparently growing out of the policy of charging according to the bearing power of the traffic, was to the effect that different

rates was levied on different kinds of fruit. The inadequacy of the service was severely criticised, and it was charged that the rate from the Canadian shipping points was higher than from places similarly situated in the adjacent States. It is evident from the discussion that a great many abuses have grown up in fruit transportation, and that some are sufficient to seriously retard and injure the development of local and export trade. This is the natural result of a system which virtually gives the railways unlimited power in determining what they will charge in hauling fruit. The products of our orchards and vineyards must vary largely from year to year. In the abundant years the fruit growers must make up for the occasional bad years, but it is not unnatural for the railways to estimate according to the bountiful seasons. In carrying out the policy of adjusting rates according to the endurance of each line of traffic the railways are apt to overestimate the profits on fruit growing. But even if no such mistake were made, and no development of fruit production was killed off by excessive charges, there would still remain the evil of fixing charges according to the fruit growers' ability to pay. There is at present no regulating power except the natural acquisitiveness of the railway companies, tempered by their care not to kill off the industries that create traffic. Under such conditions abuses are inevitable. In fact, when the conditions are fully considered the almost absolute power and authority of one party to the contract in the hauling of produce—it seems strange that conditions are not much worse. An independent tribunal to adjudicate between shippers and carriers is a necessity, and must be established before any material improvement can be effected.—*The Globe.*

FOUR GOOD POINTERS

A FARMER grows 2,000 barrels of fine apples. At harvest time he dumps them into the hands of a middleman for $1,500. The middleman stores the apples until February and sells them for $12,000; the farmer then complains that "there is no money in farming," and that "farmers are robbed," and so on. Moral: the man who commits suicide cannot properly accuse anybody for murdering him.

A miserable apple appears on the market. It is spongy, stringy, acid, flatulant, juiceless and generally unsatisfactory for eating, stewing, baking, pieing, drying, apple-buttering, cidering, or vinegaring, but it is of good size, rich in coloring and generally showy in appearance, and buyers make a call for it. Nurserymen are compelled to grow it. Orchardists are forced to supply it. Moral: Not all people at all times really know what they wish or what is really good for them.

A stranger appears. He carries a book containing portraits of apples and other fruits loud enough in color to make sleep impossible within ten miles of the trees. The victim buys some of the trees. When they come to bearing, he is surprised to find that none of the rainbow coloring in the books has got onto the fruit. Moral: Some people are too hard to please, and some are not worth pleasing.

The man who grows grapes to make wine, corn to make whisky or apples to make cider, signs his name to a petition to legislation that shall forbid any man to sell wine, whisky or cider. Moral: This is as queer as it is immortal.—G. W. Hizz, in "New York Farmer."

SOME GOOD THINGS SEEN ON A RECENT VISIT TO SCOTLAND

BY

R. CAMERON,

NIAGARA FALLS.

WE have to thank the Secretary of Hamilton Horticultural Society for the manuscript of Mr. Cameron's address, of recent date, and did our limits permit, we would give the whole paper ; but as it is we are compelled to simply make a few selections :

Retinospora squarrosa grows in Scotland to the height of ten feet, columnar in form, and, having a heath-like foliage of a soft grey color, it could not be passed without being admired. I think this variety is the handsomest of its class, and a striking object in the grave-yard. It may be said to be hardy in the Niagara district. There are several other varieties of the Retinospora. *Cupressus Lawsoniana erecta* is another very beautiful tree of first quality. This was seen on a number of gentlemen's estates, a handsome evergreen, with fern-like foliage on long, drooping branches.

There were a few varieties of Biotas seen also, that were the picture of health, and suitable for cemetery trees, all having beautiful fern-like foliage, both green and golden. They are very decorative plants and much used in Britain, where the soil and climate are very suitable for their growth. It may be said that most of the Retinosporas are hardy in the Niagara district. *Ericoides* is a very strange and beautiful dwarf variety. It takes on a bluish-steel color in the winter, making it a very conspicuous object. *R. sulphuricum* is another variety that is very attractive, also dwarf and pendulous, with golden tipped foliage. This one is not plentiful as yet. *R. filifera* has thread-like, drooping branches, very odd and pretty when planted among others. *R. filifera aurea* is a dwarf golden variety, otherwise it is the same as the last named. *R. plumosa* and *R. plumosa aurea* are both very pretty, perhaps the hardiest of the lot, and the most robust growers—the one has golden foliage, the other a silvery green. *R. pisifera* would be considered the most beautiful by the majority of people. It is also a golden species. *R. obtusa* is a grand variety. It grows fast and upright, dark green on the upper side, silvery on the underside of the scale-like leaves, and looks very like Cupressus Lawsoniana erecta in form and foliage. There are a number of others but space will not permit taking them up just now.

I will pass on to the Taxus or Yews, that are so common in Britain, on every gentleman's place, in every cemetery, and in church and other public building yards. The Scotch call them *Taxus grandus*, and they are certainly grand and noble specimens there growing. There are a number of varieties of these beautiful trees, most of them hybrids. The following will be found to be the best. All are not supposed to be hardy in this country, but there are some that do very well in this vicinity, such as *Taxus baccata*, (common yew), hardy here. Very much used for hedges in Britain. There is also a golden variety of this one that is very pretty, named *Taxus baccata aurea*, (golden yew). *T. Hibernica*, Irish, or Florence Court Yew is probably the handsomest variety, growth upright, column-like, dark green, a very striking plant, but not supposed to be hardy in Ontario. There is a native species that is commonly found grow-

ing in our woods, a very pretty prostrate form, that should be made more use of in the way of clothing the ground under deciduous trees, that otherwise would look bare and bleak during winter months. This is *Taxus Canadensis*, generally called Ground Hemlock. The fruit is good to eat and very pretty. There have been a few hybrids raised that are also hardy in the Niagara district. In Britain the yews grow perfectly, the climate being very suitable to their development, the most common variety being *Taxus baccata erecta.*

The *Sequoias* and *Auricaria* imbricata are magnificent looking trees, growing on most gentlemen's estates. The last is used as a cemetery plant, and may be seen from sixty to eighty feet high. I saw, at Abercairney Castle, beds of *Azalea mollis* about eight feet feet high. None but those familiar with these shrubs can realize what a grand sight they are when in full bloom and in many colors.

The rhododendrons in every shade of color are the most common shrubs to be seen. They are grand if for no other reason than for their foliage being evergreen.

Then we have the *Hollies*, which are the most decorative large shrubs, or trees, in existence, evergreen foliage, and beautiful when full of their scarlet fruit during the winter months. There are some beautiful variegated forms of these plants. Then again we must not forget the Ivy, of which there are a number of varieties, green and variegated, and different forms of leaves. They are not hardy enough for this country. The best use that can be made of them is to grow in vases and window boxes, in a trailing fashion. For this purpose the Ivy is one of the best vines we have, because it will stand any amount of drouth, which would kill any other plant I know of. By laying the roots into the ground in a sheltered spot and throwing some leaves over the plants, they will come out all right in the spring, and be ready for use another season.

Another very beautiful plant which carries more fruit than any plant that I know of, and is the most fruitful of all its family, was the *Berberis Drawinii.* This variety, if found to be hardy in Ontario, should be grown by all lovers of plants ; the fruit is purple.

Boxwood plants were seen twelve feet high, with magnificent dense foliage ; this is one of the best of evergreens. Some varieties are hardy in this Province.

Ruscus aculiatus, or Butcher's Broom, (Lily family,) is a native of Britain and the Mediterranean region. This plant bears its small lily like flowers upon the centre of each evergreen leaf, a strange place to produce flowers and seeds. The plant is dwarf, evergreen, and probably hardy with a little protection, resembling a Boxwood, the leaves prickly pointed.

The Gloire de Dijon roses are growing as common vines on many of the houses in the north of Scotland, covering in some places one-half of the buildings. They are clean, healthy, and full of bloom, a sight not easily to be forgotten, and the perfume of the flowers wafted by the wind was charming. The roses exhibited at the Glasgow Exhibition were very fine flowers, with splendid foliage, and good substance.

Buddleia variabilis is a very pretty plant and odd. The variety globosa is supposed to be hardy in some situations and will grow to ten feet high where conditions are suitable. They are natives of Peru, Asia and India.

I saw the pretty evergreen dwarf shrub of the heath family, a Canadian variety, that I have seen growing in our swamps, foliage green on the upper side, woolly and white on the under side, flowers white, which grows to about six inches high.

Mr. Cameron concluded his paper with a very extended list of plants, with brief descriptions of each ; and many of them would, no doubt, do well in Ontario.

THE CANADIAN FRUIT TRADE

INTERVIEW WITH DOMINION GOVERNMENT OFFICIAL—POSSIBILITIES OF THE FUTURE.

PROBABLY most people connected with the fruit trade know in a general way that the Canadian Government are doing a good deal to aid and extend the export fruit trade, but few persons are aware of the extent to which this is done, or the many points at which the Government assists the grower or the packer. With the object of attaining some reliable information on the subject the Glasgow representative of this journal had an interesting interview with Mr. W. A. MacKinnon, chief of the fruit division, who is at present in this country inquiring into the needs of the British trade, and endeavoring to ascertain where the Canadian falls short in supplying those needs, and what can be done to remedy any shortcomings that may exist.

The "fruit division," it may be exclaimed at the outset, is one of the sub-divisions into which the Department of Agriculture is divided. The Department of Agriculture is under the charge of the Hon. Sydney A. Fisher, Minister of Agriculture, and a most important branch is that directed by the Commissioner of Agriculture (Prof. James W. Robertson), who like many other Canadians, is of Scottish origin. This branch is divided into various "divisions," and it is with the fruit division that we have meantime to deal.

"Our main efforts," said Mr. MacKinnon in answer to our representative, "are devoted to the commercial aspect of the fruit trade; one of the most important things we have had to do recently was to see to the enforcements of the Fruit Marks Act of 1901 as amended this year."

"I suppose," ventured our representative, "that Act will be on the lines of our Food and Drugs Act?"

"Perhaps so. The Fruit Marks Act was passed to put an end to fraudulent practices, which casts discredit upon Canada and involved loss to those engaged in the fruit trade. These frauds were of two kinds—(1) fraud in connection with sale by description, as where ordinary fruit was described or marked as 'No. 1,' 'choice,' 'fancy,' or otherwise excellent; and (2) fraud in sale by sample—cases of 'faced' fruit in which the surface of a package of fruit was such as to give a false representation of the contents. The perpetrators of these frauds were shielded by using fictitious names, the names being changed frequently, too; but under the Act every package must bear the full name and address of the responsible shipper."

"I should think that would have a most salutary effect."

"Yes; because before the passing of the Act, if the trade got sick of any particular brand they did not get any more of it—at least under the same name. The Act makes the shipper accept responsibility, and the credit or discredit attaching to his own goods."

"How does the Act operate in the event of bad fruit being found? How is a decision arrived at?"

"It is held that false representation is intended where more than 15 per cent. of the whole is decidedly inferior to the surface shown. Under the Act, too, every package bears one of six marks—first quality, No. 1, or XXX; second quality, No. 2, or XX; and third quality, No. 3, or X. A fine is provided for every package marked to indi-

cate first quality if the package contains more than 10 per cent. of inferior fruit—bruised, undeveloped, wormy, or otherwise defective. That allows 10 per cent. for accidental inclusion of poor specimens of rapid packing; for, of course, all fruit is supposed to be in good condition when packed. The penalty is from 1 s. to 4s. per package."

"Is there power to confiscate for a contravention?"

"No; there is no power to confiscate, but a brand is put upon packages in respect of which the act has been contravened, and the packages reach this country with the brands on them. There are twelve inspectors examining fruit at packing-houses and at the ports of shipment, and the Act is being strictly enforced. There were ten or twelve prosecutions last year, and there have been others this season although it is not far advanced. It should be explained, however, that Prof. Robertson directed that last year the Act should be made chiefly educational, and the practice of the inspectors was to spend most of their time giving information as to the interpretation of the Act. Fines were only imposed toward the end of the season, and the infractions being first offences, the penalties were really nominal."

"What would be the probable extent of the fine in a case in which you were satisfied there was systematic fraud?"

"Well, a carload contains 150 barrels. If the inspector finds evidence of systematic fraud in one carload, and the magistrate imposes the maximum penalty, that would mean $150. Another important point is that if the inspectors are engaged in examining a lot of fruit—say at Montreal—and they find evidences of systematic fraud, they would detain the consignment long enough to complete their examination if they have to open every package, and even if the whole consignment should miss the boat for which it was intended. On the other hand, however, when the inspectors find uniform and honest packing in a certain brand, of that brand very few packages would be disturbed. In the spring and summer season, and also in the late winter season, the work of the inspectors is largely educational. They are all practical fruitmen—nearly all apple shippers, indeed—and thoroughly understand the cultivation of apples, from the planting of the tree to their marketing of the fruit. During the 'off season' they attend what are called 'farmers' institute meetings,' which are held all over the country, and where they can give information on any branch of fruit culture upon which the farmers desire enlightenment or advice. Useful work of this kind is done by the Ontario and other provincial governments, and also by the Dominion Government. In cases where the membership of a farmers' institute is over 50, the Ontario Government, for instance, make a grant towards the expenses of the organization."

"What about the future possibilities of the trade?"

"There has been a great revival in agriculture all over the country during the last two years, and the fruit section certainly has not escaped the influence. An important question is the varieties of fruit for which there will be a permanent demand in this country, so that the department can advise farmers what varieties to plant. Then, again, they wish to know the varieties that arrive here in the best condition, and there is also the question of packages. In this latter connection, for instance, I find there is a strong demand for small packages containing about 40 lbs. or 50 lbs. of fruit."

"What about pears and grapes, about which less is known here than apples?"

"In regard to pears the possibilities are almost unlimited, as the acreage on which good pears should be grown is not nearly taken up; and if the proper varieties are

grown—as probably will be the case—and the fruit arrives here in good condition, as it is beginning to do, there is room for unlimited expansion. Something has been done in peaches, but that is still in an experimental stage, and in regard to grapes, I will only say that the matter is receiving the attention of the Government."

Mr. McKinnon proceeded to show in detail the exceeding care which was bestowed on fruit by the Government inspectors from the time it left the tree to the time it arrived at its destination, and, in concluding what was a most interesting interview, he suggested that dealers on this side might facilitate the work of the Canadian Government by communication with Mr. Grindley, at the Canadian office in Liverpool, in the event of their being defrauded either in connection with the marking or the packing of Canadian fruit.—*The Journal of Fruit and Greengrocery, London, Eng.*

LATE FRUITING OF BERRIES

SO many reports have been published this season of berries ripening in October and November that curiosity is aroused as to the cause of such phenomena. The peculiarity has shown itself in some varieties more than in others, and has led people to think that "everbearing" sorts are being developed. Mr. Van Deman, writing in the Rural New Yorker, explains that with raspberries and blackberries the fruit buds are found quite early in the summer, and when the conditions are reversable for their development into growth they will sometimes do so at once instead of remaining dormant until the next spring, as they would normally do. These fall berries are sometimes of the largest size and the best quality, owing to the favorable weather that often occurs then. There are some cases of strawberries developing their fruit buds in the fall, instead of the following spring. A new variety that was shown at the Pan-American Exposition last year is the most peculiar in this respect of any. It is a case of bud-variation of the Bismarck, which is a well-known variety. The new kind makes very few runners, but seems to develop excessively its old plants, and especially its fruit buds. After the hot weather of the summer is over, if the season is at all favorable for growth, the fruit buds come out and bloom and bear a heavy crop of excellent fruit. Sometimes the apple, pear, cherry and other trees develop a few of their fruit buds in the fall, but they are usually too late to produce anything more than partially formed fruit. The bush fruits, being of a nature to perfect their fruit in a short time, are far more likely to produce crops that will ripen.—*The Mail.*

THE VILLAGE PARK AND CEMETERY

IT is surely a sentiment worthy of recommendation, that leads us who live to pay respect to the dead, for to them we owe many debts of love and gratitude. A neglected graveyard with uncut grass, broken fences and stones that are falling over, seems to shame the living, and speak loudly of their lack of reverence for their ancestry.

The old fashioned cemetery-graveyard was not planned with any taste, and the elevation over each grave made it almost impossible to keep the place in presentable condition. Such small, neglected burial places should be discouraged, and townships should be combined to set aside land in the most convenient location where a park-like cemetery could be laid out after a well prepared plan, and a superintendent engaged who would be responsible for its care and management. The municipal councils might have to lay out one or two thousand dollars at the outset, but, if well designed and well kept, the patronage would so increase that the sale of lots would soon make the cemetery a paying investment, and the pride of the country side.

THE ENTRANCE.

From a business as well as artistic standpoint, a great deal of attention should be paid to the entrance. First impressions go a long way, either upon the mind of the visitor or upon the heart of the mourner. It does not seem half as hard to lay aside a loved one under the shade of some of nature's beautiful trees, inside a yard screened from the public view by hedge and vine, as it does on some bleak hill side, where stones stand awry amid the long grass, and the approach is through tumble down gates which give the impression that nobody cares. Our illustration (from Park and Cemetery) shows a beautiful vine-clad entrance to a cemetery at Newton Centre, Mass. ; and although this is a city cemetery, the idea can be adopted to the smallest village, for it is the trees and creeping vines that give the beauty, and not the expensive stone posts or iron fence.

FIG. 2522. A VINE CLAD ENTRANCE TO A CEMETERY.

UTILIZING NATURE'S BEAUTY.

Then, inside the gate, the visitor should not be too soon confronted with a batallion of cold marble. Rather should there be a separateness of family groups, by trees and shrubs, in such a way as to remind one of home life, and not of a vast public gathering. Many of our cemeteries are bare fields ; when near at hand are beautiful rivulets and undulating surface, which could have been had for the same or even less money, and have been an unending source of satisfaction to the lot holders.

A GLIMPSE OF NATURE.

Fig. 2523 shows how a little stream, which perhaps could be stepped over or crossed with a plank, can be utilized for a rustic bridge and add wonderfully to the beauty of the landscape. This view is one contributed to Park and Cemetery by the late Joseph Meehan, of Philadelphia, and is a glimpse in Fairmount Park, but a suggestion that can be adopted in even a village cemetery. The clump on the right, along the stream, is the odoriferous spice bush, which bears scarlet berries ; on the left or the rising ground, is a native beech, and on the opposite side are more beech trees together with white, black and red oak trees, a charming collection in any Park or Cemetery.

FLORAL DECORATIONS.

We doubt very much the wisdom of encouraging the planting of annuals on cemetery lots, but the use of cut flowers is appropriate at any time. They are the expression of an abiding love, which can [illegible] be made by frequent visits with [illegible] emblems. For such gifts, nothing is so useful a receptacle as the floral trough, which may be made in any form and placed upon the grave, or removed at will. These may be made in any desired form, and being filled

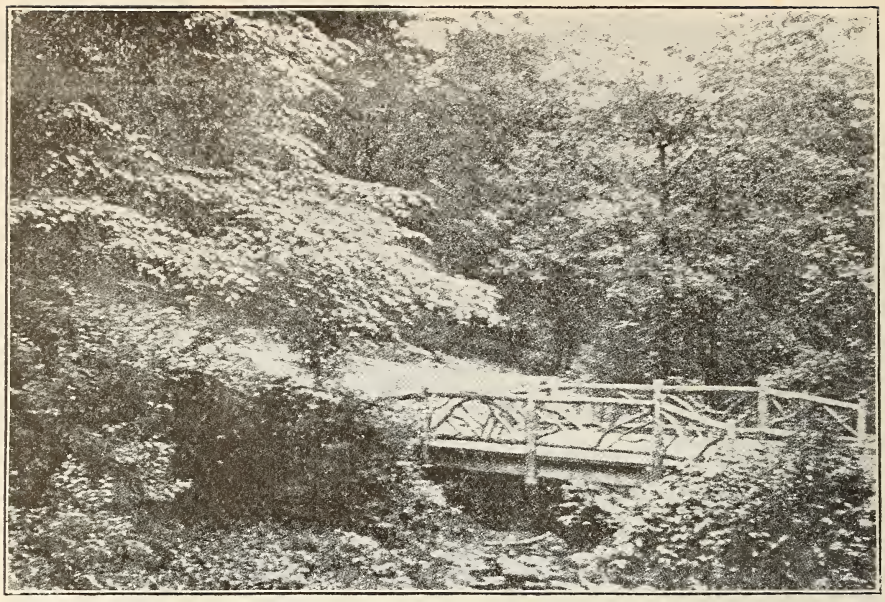


FIG. 2523. A GLIMPSE OF NATURE.

with water will keep the cut flowers in a fresh state for a long time.

AN EXCELLENT PLAN FOR A TWO ACRE CEMETERY.

In view of the great need for a step forward in this particular department of landscape art, we reproduce from an old copy of this journal, a good plan for a village cemetery, with instructions for carrying it out.

AWAY WITH FENCES AND HEDGES ABOUT LOTS.

In the first place, an imperative rule should be established, that railings, copings, hedges, and fences of any kind, around cemetery lots be strictly prohibited. They are not only utterly useless, but they seriously detract from the natural beauty of the landscape. They render the tidy keeping of the ground almost impossible, and, as they become dilapidated with age, they are offensive to refined taste. It is a traditional notion which originated many hundred years ago when church-yards, improperly fenced, were the only burial grounds. In the modern cemetery, the boundaries of lots should be marked by small corner posts, sunk in the ground so that the tops are level with the sod, in order that the lawn-mower may be worked without hindrance.

Any one who has been accustomed to see only the old style cemeteries, with lots fenced like sheep-pens in a show yard, and who will take the trouble to see an improved cemetery, where all enclosures have been abolished, will readily become convinced of the folly of expending millions of dollars on useless railings.

ONE MONUMENT ON A LOT.

Secondly—The height of headstones should be limited to two feet, or less. Few old style, tall, slab headstones are erected anywhere now, because of the difficulty of keeping them erect, their liability to be broken when leaning over, the certainty of their becoming moss-covered and their altogether unpleasing appearance. In a cemetery which is to be beautified they should be

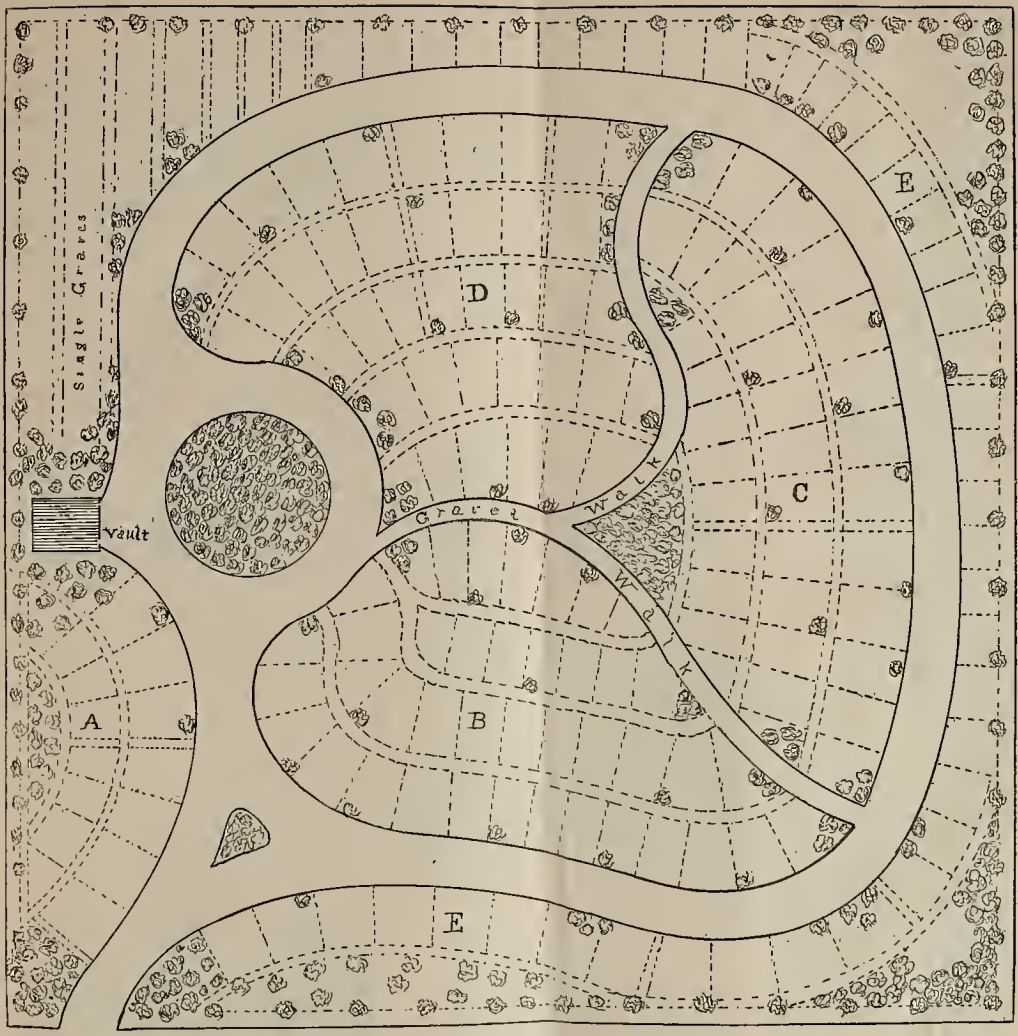


Fig. 2523. An Excellent Plan for a Two-Acre Cemetery.

FIG. 2525. GRAVE YARDS AS WE OFTEN SEE THEM.

strictly prohibited. A chaste monument, with space for several inscriptions, erected on a good foundation in the centre of the family lot, answers a better purpose than a number of headstones, and may be cheaper. Only one monument should be erected in a family lot. The initials should be cut on the top of all foot-stones, which should be level with the surface of the ground, permitting the lawn-mower to pass over them.

NATURAL SLOPES.

Thirdly—Such a thing as a raised lot, or terrace, must never be permitted, because it mars the beauty of surrounding lots, which are kept even with the natural slope of the ground. The desire on the part of some lot-owners, entirely devoid of taste for landscape gardening, to have their lots raised to a dead level without regard to surroundings, is one of the greatest difficulties which the cemetery managers have to contend against. Hence it is actually necessary that a rule be established prohibiting the raising of any lots more than four inches above the standard grade of the ground.

GRAVEL WALKS.

Fourthly—There can be but few well-kept gravel walks in a cemetery. They should be made only where there is likely to be so much travel that turf would be worn out. There is nothing so pleasant to walk upon as closely mowed turf ; there is no walk more beautiful than one of nature's green carpet, therefore, the gravelling of paths or aisles between or around lots should not be allowed. Badly kept gravel walks are nearly as objectionable as rusty railings.

FLOWER PLANTING.

Fifthly—Many lot-holders make a practice of planting flowers on or about the graves of their deceased relatives. The sentiment is praiseworthy, and should be encouraged to some extent, but it is quite possible to have too much of a good thing. Some kinds of flowers are short lived, and their dying foliage gives a shabby appearance. I have often seen cemetery lots turned into flower gardens, which did not look nearly so well as other lots kept in neatly cut grass with only a small bed of flowering plants at the foot of the graves.

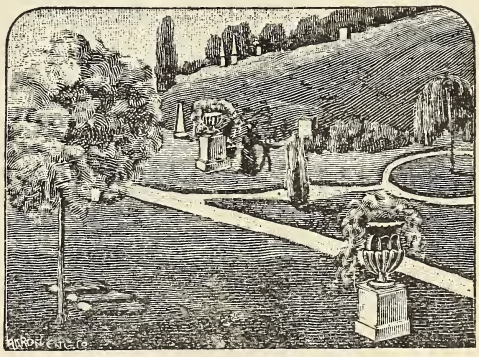
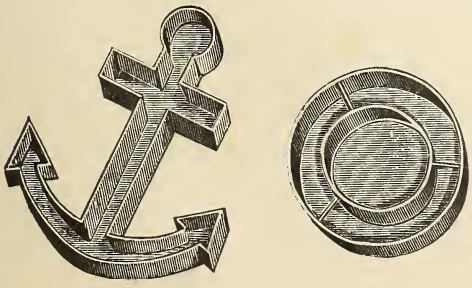


FIG. 2526. GRAVE YARDS AS THEY SHOULD BE.



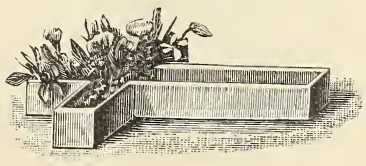


FIG. 2527. FLORAL TROUGHS.

NOTES ON WINDOW PLANTS

RENEWING A GERANIUM—HOW TO WINTER A CHRYSANTHEMUM—ROOT DIVISIONS—POTTING — WATERING — EXCELLENT POINTERS

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH, ONT.

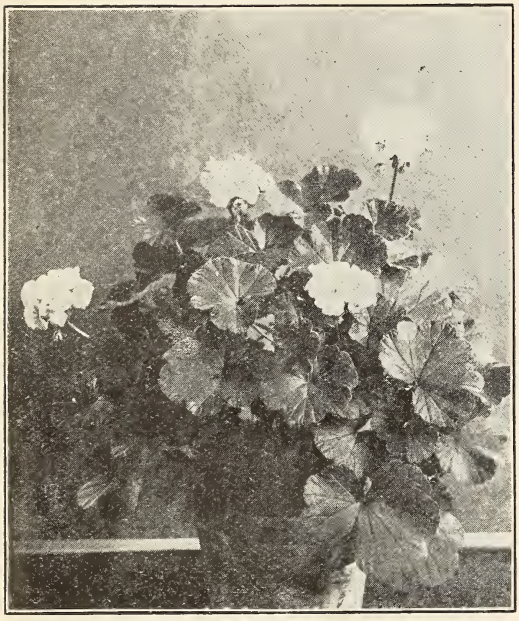


FIG. 2528. GERANIUM "WHITE SWAN" RECLAIMED BY PROPER TREATMENT.

IN THE July number of Horticulturist two cuts are shown of a geranium plant that had become gaunt and unsightly looking from having been grown indoors for a long time. The cuts mentioned gave an illustration of the plant before and after the cutting back process.

The accompanying cut (Fig. 2528), from a photo, shows the same plant as it appeared early in November after having been grown in summer as recommended in above memtioned number of this journal. Although the variety shown (The White Swan) is not one of the best for winter flowering purposes, it serves to illustrate what can be done—by only ordinary treatment—to reclaim an old unsightly looking geranium plant, and make it a nice bushy plant for the window in winter. This plant was grown outside in the open without the assistance of a greenhouse or sash, and without any special skill being bestowed on its culture.

CHRYSANTHEMUMS.

Some readers of the journal may, perhaps, have a chrysanthemum plant in their possession that has done flowering, and although anxious to keep it over for another season, or grow some young plants from it, scarcely know how to proceed so as to carry it safely through the winter.

I must first of all, however, say that from a commercial or professional point of view, I do not consider it worth the trouble and risk to attempt to keep over old chrysanthemum plants for flowering purposes the following season. At the same time amateur flower lovers do not always make as close an estimate on returns for labor expended as commercial florists have of necessity to do in connection with plant culture.

Taking the latter fact into consideration and making due allowance for a little laudable sentiment in this respect I will endeavor to give a few hints that may be of use to

those who wish to try and winter over a chrysanthemum plant.

After cutting down the old flower stem to within an inch or two of the surface of the soil in the pot, do not put the plant away down in a dark cellar as is often done. As a rule if this is done the plant is either allowed to dry up completely and die, or otherwise it is kept so wet that the plant is rotted away by successive waterings, given at a time when very little water is needed.

The best place to keep chrysanthemum plants after cutting them down is in a window in a cool room, where the temperature is about 45° or 50°. Plenty of light and sunshine will be beneficial to the plant so long as the room is not too hot to induce a weak premature growth of the young shoots that usually appear on the surface of the soil before the plant is cut down. As much fresh air should be given it as possible on fine warm days, avoiding cold, cutting draughts or winds. By keeping the plant in a cool place as described and by giving it all the cool air possible without chilling it, the growth of the young shoots before mentioned will be retarded and hardened. These last two points are the main ones to be considered to attain success, as the tendency and nature of the chrysanthemum is to grow all the time; unless given as nearly as possible the same surroundings it receives when growing naturally out of doors in winter, in the more temperate climates than ours where these plants are natives.

If kept in a cool place as described the growth of the young shoots can be retarded until well on into winter or perhaps early spring. Sufficient water must be given the plants to keep the soil in the pots only fairly moist. Water the plants so as to moisten all the soil when water is given, then withhold water until the plants show signs of dryness again. The top of the soil usually indicates by its lighter color the time when the plants require water. Give the plants air on fine warm days.

When growth commences pinch off the tips of the shoots when the latter are three inches in length. This pinching should be repeated as often as required—usually every three or four weeks—until May, when the plants can be placed out of doors on fine days in a sheltered position to harden off the growth.

In a week or two the plants can be divided up into two or three pieces, if the size of the plant will warrant this treatment, and each division potted into a small sized pot. Or the whole plant can be potted into a pot one or two sizes larger, or it can be planted out in the open ground to grow on during the summer. The tips of the growth in any case should still be kept pinched off every three or four weeks as required until July, when they may be allowed to grow on without pinching or topping.

If young plants are required, instead of pinching the young shoots, they should be

FIG. 2529. CHRYSANTHEMUM.

cut off when about three or four inches in length. Cut them off just below a leaf joint, and insert the cuttings in sharp clean sand. A four-inch pot will hold several cuttings until rooted. Place sufficient small pieces of broken pot in the pot, before putting in the sand for the cuttings, to act as drainage; this prevents the cuttings from rotting oftentimes. Place the pot of cuttings in a warm shaded place in the window, where the temperature is about 60°. Pot the cuttings off singly into small pots when rooted, which will usually be in four or five weeks from the time they were put in the sand.

Chrysanthemums like rich, fairly light soil. Press the soil firmly around the roots when potting or repotting chrysanthemums, as loose potting does not suit them at any stage of their growth. The pinching and after treatment of the young plants will be about the same as recommended for the old plants before mentioned.

Aphis or green fly, and the tiny mites called red spider, are the only insects likely to trouble chrysanthemums in winter. Tobacco water will do away with the aphis, and a sprinkle of cold water, once or twice a week on the foliage, will keep down red spider.

Old plants of chrysanthemums can be successfully wintered over out of doors or in frames in favorable winters, if given some protection. Some of the hardy pompone varieties will even live in some of the most favored localities, such as the Niagara district, without protection, but the tender hybrid Japanese and Chinese varieties seldom winter over successfully even in frames, or when protected, unless great care in regard to hardening off, etc., is given them early in the season, and close attention to ventilating and covering given them during the changeable weather conditions experienced in early spring time.

Grafting Cacti.

SIR,—How do you graft the Cactus and what would you graft a Lobster Cactus on.

H. D. K.

The Lobster Cactus (Epiphyllum truncatum) succeeds best grafted on the Pereskia aculata or Pereskia Bleo stock. The Pereskias mentioned grow readily from cuttings placed in sand. Cleft-graft a small lobe or two of the Lobster Cactus on to the Pereskia stock in spring time, when the growth of the Cactus is young and in a growing state.

Clematis.

SIR,—How do you propagate Clematis Jackmanni, and can you recommend a good blue Clematis?

H. I. K.

The Clematis is propagated by layering, or by root grafting. Clematis Raymond, pale blue, and Clematis Hybrida Sieboldiana are the best blues, the first variety preferred.

Guelph. W. HUNT.

Tea Roses.

SIR,—Is it possible to make a tree rose from the H. P. Rose Mrs. John Laing grafted on the briar stock, so that the rose will be as vigorous and hardy as when grafted low down, or grown on its own roots.

Toronto. H. S. KEDDLE.

Tree or standard roses of any kind are not a success in Canada, planted out of doors. Even low-grafted roses have to be protected by junction of stock and graft (or bud) during the winter months, by banking earth or some protective material around them unless very deeply planted.

Guelph. W. HUNT.

BEAUTIFYING SCHOOL GROUNDS

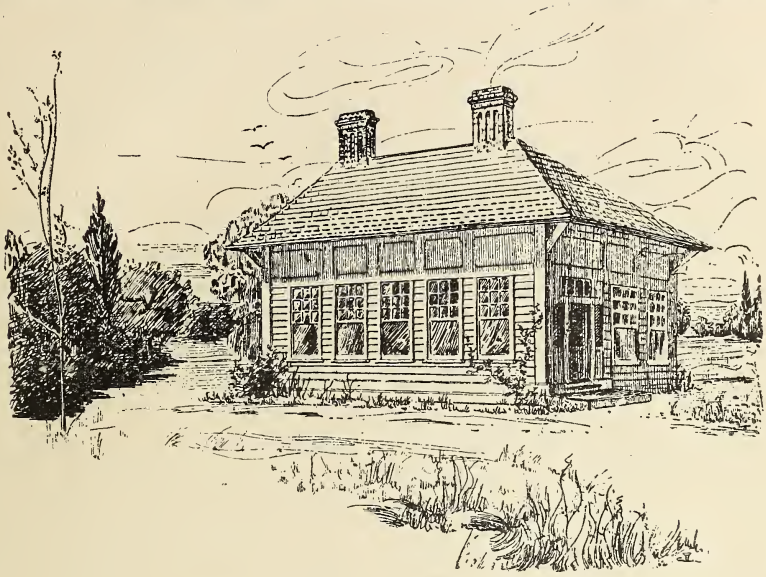


FIG. 2530. SCHOOL HOUSE.

AN excellent address was given Thursday evening, 27th November, 1902, before the Woodstock Horticultural Society by Mr. G. R. Patullo, the president, from which we take the following extracts :

SCHOOL GARDENS.

I am in favor of both school gardens on school grounds and of scholars' gardens at home. Teachers' gardens have also been tried, and are common in some European countries, including Russia, Prussia, Austria, Belgium, Switzerland and Sweden. It may be that conditions here are not altogether favorable for teachers' gardens, as carried on in older countries. But I would respectfully suggest to every teacher that, if at all possible, he should cultivate a little garden, and from time to time make use of it as an object lesson to pupils.

Thus far there are only pupils' gardens in this country, and the movement is spreading rapidly, both in the United States and Canada. There are said to be over 100,000 school gardens in Europe. The first one started on this side was in Boston in 1891. There they had vegetable gardens as well as flowers and plants. The boys had individual plots where once a week they worked, planting, weeding and watering. The flowers were at first confined to ferns and a few annuals. But later, vegetables were introduced and with success. In one garden thus established, and promoted by the offer of prizes and seeds, where the vegetable plots were small, being only large enough for a short row of radishes, onions, lettuce, beans, two hills of potatoes, two cabbage plants, one cucumber vine and one tomato plant, the children thoroughly enjoyed the planting, caring of them, and reaping the results of their production. As a result "lettuce sandwiches" in spring were the chief feature of school lunches. Later on "cucumbers for breakfast," and "beans enough for dinner" were enjoyed.

In other cases flower beds or small vege-

table school gardens, were kept by a class or grade in the school. The individual plot is probably the preferable one, as thereby each pupil has a proprietory interest in his bed, and is likely to take more interest in it than if the ownership was only a common one.

WOODSTOCK ENTERPRISE.

In Woodstock we made a beginning three years ago of improving our school grounds by making a large bed of plants and flowers in front of the Central school. Last year the annuals were very satisfactory, and attracted a great deal of attention and favorable comment. In the autumn 1,200 tulip bulbs were planted in the same bed, and their appearance in the spring with their rich and varied colors (four varieties) was extremely effective. It did much to create public opinion in favor of this movement. And later in the season, in addition to the bed being replanted with tropical plants and showy annuals, the School Board at the suggestion of the Horticultural Society, planted a considerable number of shrubs and evergreens along the fence at the rear of the fine grounds. These have thrived well during the summer, and, with a little time will add greatly to the attractiveness of the grounds.

Similar action followed on the grounds of the Collegiate Institute, and also on those of the County Buildings, both of which have been thereby improved in appearance.

In addition to this the Horticultural Society has tried to do something in another direction to encourage the school children and citizens in the direction of floriculture and horticulture. Last year they offered money prizes for the best kept flower and vegetable gardens, and also for the best kept lawns and boulevards—competition being open to citizens having ¼ acre or less of ground. There was considerable competition and it excited a general interest throughout the city. The Society also offered prizes for the best kept home plots to be planted and attended by pupils of the city schools. This competition was also fairly satisfactory.

It is interesting and satisfactory to note that a flower garden competition has also been held in Ottawa during the past two years at the suggestion and through the generosity of Her Excellency the Countess of Minto, who contributed therefor valuable gold and silver medals. The latter have been eagerly competed for and won, among others, by several millionaire residents of the capital. Thus has Her Excellency of Government House been doing something practical towards making our Canadian Capital City the Washington of the North.

But the Horticultural Society this year adopted a somewhat different plan. They distributed to three pupils in each department of the Central and public schools a number of plants and flowers, such as asters, zinnias, phlox, petunias and geraniums. These were distributed free, the only condition being that flowers from them should be exhibited–and a large number of bouquets were exhibited by the children as stipulated at the fall exhibition of the Society. In this way from eighty to one hundred pupils received plants and flowers, and had little gardens of their own at their several homes during the summer. I have reports from them all, and they are alike interesting, amusing and appreciative. Here are some of them:

"Right in every way."

"The geraniums are like bushes."

"I gathered beautiful flowers from them."

"Thank the Society for giving them to me."

"I picked flowers every day and put them in a vase in the dining room."

"One day I cut three dozen asters off my plants and they were very large. The geraniums also were large and bloomed all the time. I gave a great many bunches to my friends."

"Slips have been taken for another year from the geraniums."

"Plants were put out and bloomed profusely all summer."

"A garden which is my very own pleases and interests me very much."

And one little tot whose enthusiasm surpasses her grammar, exclaims: "Flowered like something awful!"

GENERAL PLANS.

So much for some practical results with which I am more or less familiar. It may be asked what general plans, if any, have you for improving our school grounds? That is not an easy question for an amateur to answer. But, generally speaking, it may be said that three sides of the school grounds might be bordered with trees, shrubs and flowers. The centre should be kept clear as a playground, and the front partially so. This depends upon the size of the grounds, their topography, and the location of the school buildings. Convenience and effect should be studied. The school house—ivy-covered where brick or stone—should be the picture, and the trees, shrubs and flowers the frame. The plot within the trees, shrubbery and flowers should be sodded and well kept. A lawn mower is of course a necessity, although I venture to say it is almost a stranger in our rural school grounds, and in a majority of these in towns and cities.

Of the trees to be planted around the grounds, I would suggest such common varieties as can be easily procured. Maples, elms, beeches, birches, basswood and evergreens. Many of the shrubs also may be got from the woods, and so of wild flowers. Of cultivated plants, a bed of bulbs (tulips preferred) is a great attraction in the spring, and later on, showy annuals, such as geraniums, petunias, ageratum and salvia, with some common tropical plants such as castor beans, dalhias, cannas, and even a Scotch thistle.

GARDENING A RECREATION FOR SCHOLARS.

School gardens do not add an additional subject of study to the present curriculum. They are simply an educational object lesson for the use of the teachers and the information of the scholars. By their aid the teacher and scholar may enjoy, say once a week, a few minutes' pleasant recreation in the open air and sunshine, while the one is teaching and the other is learning a little of practical botany, chemistry, floriculture, forestry, drawing and landscape. Could there be a more delightful or profitable lesson for both teacher and pupil? And, what is also important, the experiment would cost little or nothing; not only so, but the movement might be extended in modified form to hospital, church and other public grounds, all of which could be thereby greatly improved and beautified.

But to begin and carry on this work will require the aid of an intelligent and sympathetic public opinion, progressive and enlightened school authorities, horticultural societies, municipal bodies and governments. All of these may do much to encourage teachers and scholars to develop our educational system in this pleasant and practical direction—a development, or rather advertisement which will improve the system and will make our schools more attractive, which will help to secure for them a larger and more contented attendance of the pupils, will inspire the latter with higher ideals of living and of citizenship, and will implant in their minds loving and imperishable memories of the happy days spent at the old school.

SUNSHINE OR SHADE FOR FLOWERS

PLANTS DIFFER—SOME WILL SUCCEED IN AN EAST OR WEST, SOME IN THE SOUTH AND A FEW IN THE NORTH WINDOW—WHAT MR. E. E. REXFORD SAYS ABOUT IT IN HOME AND FLOWERS.

AS all plants are not alike in their requirements as to sunshine and light, it naturally follows that the plants grown should be adapted to the particular place in which they are kept. Those liking a little sunshine, such as the begonia, fuchsia and calla, are satisfied with an eastern exposure, where they get the benefit of the sun early in the morning. The geranium, carnation, rose, heliotrope, and, in fact, the majority of flowering plants, which must have plenty of sunshine in order to fully develop their colors, find no other exposure so satisfactory as that afforded by a south window. A western window answers very well for many plants in winter. when the sun is not strong, but it is a poor place for them in summer, unless something can be done to greatly modify the intensity of the afternoon heat. Northern windows are not adapted to flowering plants, but shade-loving plants can be grown in them very satisfactorily. It will therefore be seen that all the windows of a house can be utilized for plant growing, provided we are careful in our selections and adapt the plant to the window it is to grow in.

It is safe to say that, as a general rule, light-colored flowers are best adapted to windows having an eastern outlook. But there are many exceptions, and the only way to make absolutely sure of the best exposure to give a plant is to experiment with it, and thus find out what conditions of light it does best in. If I were asked to give a list of plants adapted to the several exposures mentioned, it would be something like this: For eastern windows—fuchsias, begonias, callas, Chinese primroses, Primula obconica, azaleas, plumbago, stevias, lobelias, and all kinds of bulbous plants. For southern windows—geraniums, roses, chrysanthemums, carnations, lantanas, oxalis, oleanders, abutilons, hibiscus, marguerites, and most of the plants having richly colored foliage. For western windows—bright leaved plants and a few of the more "accommodating" plants like the geranium, provided the effect of too strong sunshine is modified somewhat. For northern windows—ferns, araucarias, English ivies, palms, aspidistra, ficuses and seliganellas. Roman hyacinths, Primula obconica and Chinese primroses will often bloom well in sunless windows.

But the above lists are subject to great modification, because the florist who has "the knack" of flower-growing will contrive to so control conditions that he can grow almost any plant in almost any exposure. The sun can be tempered by shades and screens. Heat can be regulated, and water used in quantities to fit the losses by evaporation which will be different in different exposures. These things can not be put down on paper in such a manner as to make them plain to the reader, but they will come to the amateur florist by personal work among the flowers he grows.

We read a great deal about shade-loving plants. Now, "shade-loving" is a comparative term. It does not mean actual shade, in the sense ordinarily given the word, but it means an absence of sunshine. A fern is called a shade-loving plant, but it

will do just as well at a south window, if we keep it out of the sunshine, as it would in a window at which no sunshine enters. It is so with all plants not fond of sunshine. All the shade they need is exclusion from it, not, as so many suppose, a place in which light is so toned down that dimness results. A place may be shady in the sense that it is without sunshine, and yet it may be very light. And this is the kind of shade that shade-loving plants require.

If you are going to build a greenhouse on a small scale, like a lean-to, by all means, if possible, have the roof of it slope to the south. If you cannot do this, have it slope to the east. But never have the slope to the west, or the north, for one will give you so much sunshine that your plants will be scorched by it, and the other will give you none at all, in winter. If you can have one with a roof having two slopes—one to the east and one to the south—by all means have it, as this will give you an ideal exposure, as it combines the advantages of early morning and mid-day sunshine, and nearly all kinds of plants can be so arranged that they will get just the amount of sun they need.

If you are going to build a greenhouse with an even-span roof—that is, the roof the same on both sides—let it run north and south. Do not make the mistake of having the building so high that the glass of the roof is several feet above the plants under it. The nearer you can get them to the glass the better it will be for them. In summer, the west side of an even-span roof can be covered with thin cloth, or washed with a mixture of lime, or something similar, that will obstruct the free entrance of the rays of the hot afternoon sun.

Yucca.

SIR,—Can you explain why it is that my Y. filamentosa does not bloom?

Probably the plant are not yet old enough to flower, or perhaps they require some fertilizer to cause increased vigor and growth.

Killing Poplars and Locusts.

SIR,—I see in your last issue that H. J. G. asks how to get rid of poplars and locusts without cutting them down. I do not know how to get rid of them without cutting them down, but I know how I got rid of the suckers after the trees had been cut down. My land was covered with suckers of poplar and I got an inch bit and bore a hole eight or nine inches deep in the stump and filled the hole with coal oil. This was twelve years ago, I have seen no suckers since.

Ontario. L. J. WHITBY.

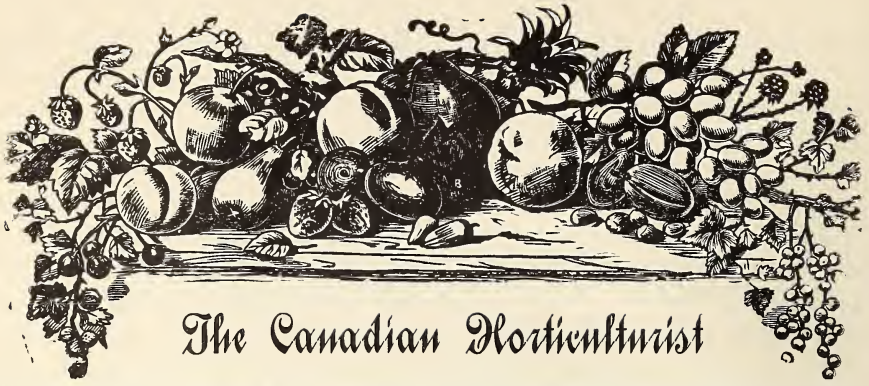
Hardy Climber.

SIR,—Can you recommend a suitable hardy perennial or annual vine to climb over a Persian Yellow rose tree, trumpet flower preferred.

H. S. K.

I cannot recommend you to grow any perennial vine over the rose tree mentioned, more especially a plant of the trumpet vine (Bignonia Radicans) as preferred by you, as the latter is a strong grower, and would probably kill out the rose tree in time. A few plants of morning glory (Convolvulus), or climbing nasturtiums, would be most suitable for the purpose, or a plant of Cobea scandens might do if it is a very large bush.

O. A. College, Guelph. W. HUNT.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

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DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

WESTERN NEW YORK HORTICULTURAL TO MEET IN ROCHESTER IN JANUARY.

THE forty-eighth anniversary of the Western New York Horticultural Society will occur January 28th and 29th, 1903, at Rochester. Among the speakers will be Professor I. P. Roberts, of Cornell University; Dr. H. J. Webber, and Professor Harold Powell, of the Department of Agriculture, Washington, D. C.; Dr. W. H. Jordan, director of the New York Exp't Station; the "bug man," Professor M. V. Slingerland, always entertaining and instructive; Professor S. A. Beach, Dr. L. L. Van Slyke, Professor F. C. Stewart, and other. Mr. Alex. McNeill, prominent in the service of the Canadian government, will give a talk on "Grading and Packing," an object lesson.

About fifty years ago a few men interested in fruit culture met in Rochester, in response to a call which declared that the culture of fruits in this region was becoming an important branch of industry. Apple growing and all fruit raising was then in its infancy. Out of the meeting of earnest, enthusiastic men who responded to that call sprang the society, which, for nearly half a century, has devoted its energies and its money to the advancement of the art of fruit culture. The discussions of practical questions, in which every one is free to participate, is a popular feature of the annual gatherings, and it is no uncommon thing to hear well-to-do fruit growers attribute their success largely to their membership in the society.

Few people realize the extent of the apple industry of the United States. Thirty years ago a barrel of American apples was a curiosity in the English market. The total exports from American to European ports, for the week ending December 6th of the present year, amounted to 111,191 barrels. The total shipments of apples from American ports for the present year up to December

6th were 1,566,398 barrels. The total for last year amounted to only 469,385 barrels, an increase of over a million barrels in the present season, so far.

The meeting will be held in a new hall, a model of convenience and comfort. There will be a large fruit display and an exhibit of spraying and other devices. The dollar membership fee not only entitles members to the privileges of the meetings but also to a copy of the proceedings containing all the papers and stenographic reports of the discussions. The secretary, John Hall, Rochter, will mail a copy of the programme to those who send for it.

AMERICAN SPRAY PUMPS IN CANADA.

The success of American Fruit Growers with the Hardie Spray Pump has led to so many inquiries for this pump from Canadian points that the Hardie Spray Pump Mnfg. Co. has started a factory and opened a Canadian office at Windsor, Ontario, to supply trade on this side of the line.

The Hardie Spray Pump is one of the standard American pumps; all working parts are brass, no cast iron enters into its construction, and the solid brass ball valves make it a simple pump to clean.

It will develop a pressure of 100 lbs. with but little effort, and now that the Canadian demand can be supplied the Hardie will doubtless become as popular in Canada as in the States.

The Smith & Reed Co. of St. Catharines, Ontario, have the finest and best selection of apple trees ever offered. Intending purchasers should write for full information before placing their orders elsewhere.

"Country Life in America" for December is a large Christmas annual with a beautiful cover and a hundred superb illustrations, and colored supplements besides. The spirit of jollity of the season pervades the bulky number of winter sports, unusual house parties, Christmas homes and many things of winter at her best. Rudyard Kipling contributes the poem, "Pan in Vermont," deifying the man who, in winter, brings the seeds of phlox and hollyhocks into the snowbound country where Kipling once lived. Pre-eminent, however, is the profusion of elaborate pictures and the articles that have to do with hockey, skeeing and tobogganing, snowshoeing, ice yachting on country lakes, fishing through the ice, and even the homely sports of skating, skate sailing and the pursuits that carry one into the deep woods. Altogether the elaborate make-up bespeaks the grand success of this new sort of magazine, the growing love of real sport in America, and the movement of the New World back to the garden and outdoor life of the Old.

BURLINGTON HORTICULTURISTS

The annual meeting of the Burlington Horticultural Association was held last week. There was a good attendance of members and all present took an active part in the discussion on the various reports. President A. W. Peart occupied the chair and gave his annual address congratulating the association on the satisfactory season. The secretary's statement showed that seven meetings had been held during the year addressed by a number of local and visiting speakers, and that a balance of $96.37 remained in the treasury. The directors reported on the conditions prevailing among the different varieties of fruit and the measure of success attending the season's operations.

The old officers were mainly re-elected and resulted as follows:

Hon. President, Geo. E. Fisher.
President, A. W. Peart.
Vice-President, J. S. Freeman.
Secretary-Treasurer, W. F. W. Fisher.

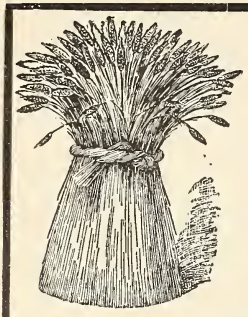
OUR BOOK TABLE.

Sun Dials and Roses of Yesterday. Garden delights which are here displayed in very truth, and are moreover regarded as emblems. Alice Morse Earle, New York, McMillan Co., 1902. Price $2.50.

Of sun-dials is this book, but not wholly a relation of their history, existence and manufacture. Of Roses, but not alone the story of their presence in the garden by the side of the Sun-dial. The volume treats of the Rose in History, in Poetry, in Symbolism in Romance, in Love, in the hearts of the whole world, and its significance in the society of the Rosibrucians. It also tells of the history of Sun-dials in the Orient, in Ancient Greece and Rome, on the Continent and Great Britain, and in Mexico and South America, and a full account of their existence in ancient and in present days. The Sun-dial in American history and as monument for heroes. Spot dials and noon marks, chilindres, pillar dials, travelers' dials, peasants' dials, shepherds' dials, and the dial in all its curious and nical forms and purposes. There is a chapter on the high significance of the Sun-dial as emblem, a symbol of life; with original designs suited to American dials, and also highly convententionalized designs from American flowers.

GINSENG. Its cultivation, harvesting, marketing and market value, with a short account of its history and botany. Revised, greatly enlarged and brought down to date. Illustrated, 144 pages, 5x7 inches. Cloth. Price, postpaid, 50 cents. Orange Judd Company, New York.

The impetus given to the American Ginseng industry through the appearance of the first addition of this book, has been almost phenomenal. Ginseng growing has made such rapid strides and demand for information has increased so greatly that a second extended edition has become necessary. The information contained in the present volume, which is nearly three times as large as the first, has been culled from a large mass of material and is, decidedly, the best that has appeared since ginseng culture first attracted attention in America. Every successful detail bearing upon successful gensing growing is fully and minutely elaborated; and the author is confident that ginseng culture will grow in proportion to the application of intelligence to it. To any one intending to embark into this industry this book must prove invaluable.



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Directions for Starting.—Place ball in water for fifteen minutes and then suspend in any desired position; repeat every two days until growth is started, after which sprinkle occasionally as required. To use in fern dish, cut balls in halves, placing flat side down, thus getting two dishes of beautiful ferns. The Fern ball may be allowed to dry up at any time and be set away, and started again by watering same as before.

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FIG. 2531.

THE
CANADIAN HORTICULTURIST

FEBRUARY, 1903

VOLUME XXVI NUMBER 2

THE NIAGARA GRAPE

PERHAPS no grape, of British or American origin, was ever introduced with greater flourish than the Niagara, and perhaps none ever sustained a reputation more constantly or gave its introducers greater financial gain. Although the Concord, among the black grapes, stands side by side with this "Queen of White Grapes," in the vineyards and in the markets of Ontario, yet the originator of the Concord, Mr. Ephraim Bull, of Concord, Mass., lacking that magic touch that transmutes to gold, died a poor man; while Messrs. Hoag & Clark, of Lockport N. Y., who introduced the Niagara, made the enterprise a great financial success.

To-day the Niagara is recognized as the leading commercial white grape and has been planted more widely in Ontario vineyards than any variety except the Concord. For dessert purposes it is second rate, and must be well ripened to be even so classed; therefore it should not be planted in the colder sections, unless it be in certain favored localities.

The Niagara originated near Lockport, N. Y., in the year 1868, from seed of the Concord, and the vine bore its first fruit in 1872. The fruit was of such excellence that Mr. Hoag, with growing confidence in its future, raised a few hundred vines and planted the first Niagara vineyard; at the same time giving a vine each to some prominent fruit growers, on whose reports he could have confidence. Later on he formed a company known as Messrs. Hoag & Clark, and the firm began to propagate the new grape on extended scale, taking great care to prevent the propagation of it by others, in order that they might themselves control the whole stock as long as possible. For many years they succeeded in their plans, and, instead of selling vines outright, they furnished them to planters on condition that the wood should be the property of the firm for a certain number of years, and that the fruit should be shared between the firm and the grower.

In the Canadian Horticulturist for January, 1880, we read as follows: "No plants of the Niagara grape have as yet been offered for sale, but Mr. Hoag is now propagating it extensively, and in due time it will be upon the market. The vine is an unusually strong, vigorous grower, as we had ample opportunity of observing when passing through Mr. Hoag's young vines, while the leaves are large and leathery, well calculated

to endure our sudden alterations of temperature and to resist the attacks of mildew. We were not able to find a leaf that showed any sign of suffering from any cause whatever. The bunches are of good size and very compact. The berries are of the same size as the Concord, and, when perfectly ripe, of a light, greenish, amber color. The skin is tough, does not crack so far as we can discover, and seems likely to bear handling and carriage well. The pulp is soft, juicy, sweet, of good flavor, with a little touch of that peculiar muskiness which shows its American origin. The fruit begins to ripen with Hartford Prolific, and will continue to hang on the vines, not only without injury but gradually improving in sweetness and richness, until hard frosts indicate the near approach of winter. We shall be very much disappointed if this grape does not take the same place among white grapes as the Concord has taken among the black. Everything about the vine indicates constitutional health, vigor and hardiness."

How truly have these prophetic words of of Mr. D. W. Beadle, written twenty-three years ago, been fulfilled regarding this grape !

Of course, like all other introducers of novelties, Messrs. Hoag & Clark made some rather extravagant statements, as for example, the following paragraph : "The Niagara grape grows, thrives and produces its enormous crops in the cold of northern Canada, the heat of South Carolina, from New Jersey to Michigan, wherever planted, and can be shipped to the most distant markets ; it is equalled by no other grape for vineyard planting ; and every farmer in grape growing sections should have a large and substantial vineyard of Niagaras. If the instructions we give for its management are observed, it will soon pay off the mortgages and leave a balance to invest, besides furnishing a genuine and attractive business for the boys who get tired of the old ways of small or no profits and leave home for other fields." It is quite true that very high prices were obtained for this grape when it was first placed upon the markets, the average being abont ten cents a pound ; and certainly, could such a price have been maintained for the Niagara grape with its enormous crops, farmers would very soon have made fortunes out of it ; but unfortunately, as soon as the large plantations came into bearing, the price dropped to about the level of the Concord.

For several years we have been trying to open an export trade in the Concord and Niagara grapes, hoping that a market might be encouraged for them in Great Britain, in view of the high prices prevalent there for their home grown varieties ; but so far we have been disappointed, and our shipments have brought nothing in return to pay for the grapes, after the expenses were fully met. Strange an Englishman should be so different here from the same man at home, for walking through our vineyards we notice he plucks and eats our Niagaras with as keen a relish as any native born Canadian ; while in England he despises these grapes and lets them go begging for a buyer at twopence and threepence a pound, prefering to pay two shillings a pound for Black Hamburgs !

The vine of the Niagara is as healthy and vigorous as the Concord, and about as productive ; the bunches are very compact and at the same time very large, sometimes measuring six inches long by four across and weighing nearly a pound. The berry is roundish; in color, pale green, turning pale yellow at maturity, and is covered with a delicate whitish bloom ; the pulp is soft, juicy and sweet, of good flavor when fully ripe, but with a muskiness. The quality for desert purposes is very good when fully ripe, and for canning it is counted among the best.

REPORTS ON THE NIAGARA GRAPE.

R. B. WHYTE, Ottawa:—The Niagara grape is not considered satisfactory for this

district. The vine is a strong grower and sets a heavy crop, but our season is too short to ripen it perfectly, and there is not enough heat to give it its best flavor, poor as that is. The year before I threw it out, it mildewed badly with me, but that is not general. Grape growers here consider it too poor in quality for home use, and too uncertain for profit. Moore's Diamond is superior to it in every way for this district.

HAROLD JONES, Maitland:—In this district the Niagara is a productive variety, and forms large compact bunches, but only in the most favorable positions as regards soil and exposure does it come to full maturity. In a few cases it has been considered profitable to raise for sale, but it cannot compare in quality with the same variety grown in the Niagara peninsula, which it has to compete against in our markets. It has not become a general favorite for home use. To become popular here it must be classed among the very earliest of the ripening varieties.

JAS. S. SCARFF, Woodstock :—In this district the Niagara seems to be one of the most profitable white grapes grown, because it produces such enormous crops, and besides it is a good shipper. It ripens both its wood and its fruit very well in this locality.

W. W. Cox, Collingwood :—The Niagara does well in this district ; the wood ripens well, and the fruit is abundant and good. I planted a vine ten years ago in an exposed place, without any protection, not even laying it down in winter or covering it in any way, and it has borne fine crops every year.

Notes and Comments

STONEY CREEK FRUIT GROWERS.

ON the tenth of January a fine Farmers' Institute gathering was held in the new Town Hall at Stoney Creek. As we entered Mr. T. H. Race, of Mitchell, was giving an address on Apple Culture, and it was evident from the close attention given him that the speaker was touching upon certain points of great interest even in this advanced fruit district. Among those present we noticed, Mr. Frank Carpenter, W. M. Orr, Joseph Tweddle, A. H. Pettit, E. J. Woolverton, J. B. Smith, E. D. Smith, M. P., John Nash, G. Millen and M. Pettit.

STOCK AND SCION.

THE old question of the influence of stock upon the scion was up for discussion. It has been long recognized that a tree may be dwarfed by grafting it upon a slower growing stock, as, for example in the case of the pear when grafted upon quince roots, or in the case of an apple grafted upon paradise stock. It is also evident that a tree may be rendered somewhat better adapted to circumstances by its stock, as for example the peach tree for clay soils when budded upon the plum, or on the almond for dry chalky soils ; or, in the case of the pear which does not thrive on a very light dry sand, but has been made to succeed much better when budded upon the Mountain ash. Hardiness has also been gained for a tree by top grafting it upon a hardy stock, and thus a variety weak in the trunk has been made to grow somewhat further north than usual.

A more unsettled question is that of the influence of the stock upon the quality of the fruit. Fifty years ago Downing wrote,

"A slight effect is sometimes produced by the stock upon the quality of fruit," but of late our fruit growers have been observing many instances of variation in color, size quality of the same variety which they can account for only by the difference of stocks.

THE TOLMAN SWEET STOCK.

At this meeting Mr. Race showed a beautiful sample of Ben Davis, bright in color, large in size and unusually humped about the basin. This apple he said was grown from Tolman Sweet, and he could account for its superiority only by this fact. He also showed a beautiful sample of Spy, unusually bright in color, which was grown upon a graft set twelve years ago on a Tolman Sweet, the latter being at that time only four years planted. Not only was the fruit remarkably fine, but the tree was so productive that it was necessary to thin it freely. Anyone wishing to verify his statements could see the trees in the orchard of Mr. Albert Jacobs, near the village of Blyth.

There was therefore some ground for the advice given by Mr. Race, to plant an orchard of Tolman Sweet trees on which to top graft our best commercial varieties.

IMPORTANCE OF CAREFUL SELECTION OF CION.

The writer called attention to the importance of greater care than is usually taken in the cutting of cions for grafting. Nearly every grower must have noticed a great variation in samples taken from different trees. Greenings, in some instances, are very evenly rounded in form, and have a beautiful red cheek, while in others they are somewhat ribbed, and entirely lacking in color. The King apple, usually a scant bearer, has in some instances shown an inclination to produce more abundantly; and the Snow apple is often so distinct in coloring that many have claimed that there are distinct varieties. It is therefore evident that there is individuality in trees as well as in animals, and, if we would attain the highest success in fruit growing, we must propagate these individual excellencies, by a more careful selection of cions.

DOUCIN STOCK FOR THE APPLE.

In this connection we note that Prof. Beach, of Geneva, N. Y., has been experimenting with dwarf apples with promise of advantage in these days when we must spray and fumigate and thin and treat so much more carefully than in former years. It is stated on good authority that in England the planting of apples on dwarf stock is increasing of late years for commercial purposes. Here is what Mr. S. T. Wright, a prominent English fruit grower, says on this subject: "I do not hesitate to say that the most paying system of cultivating apples is the growing of a limited number of varieties as dwarf trees on a soil which has proved capable of growing full crops of large apples. The prominent advantages of dwarfs are, (1) Quick returns; standards must do exceptionally well to produce anything like a paying crop in twelve or fourteen years, while dwarfs begin to bear the second year after planting; (2) all work can be done, from the ground level, while standards require ladders. Mr. L. R. Castle, in an essay before the Royal Horticultural Society, states that the most prolific varieties of apples on dwarf stock, planted ten by ten feet, or 435 to an acre, taking an average of ten years, will yield from one-fourth to one-half bushel per tree per year, or from one to two hundred bushels per acre, while well established standards would produce 280 bushels per acre, or more."

Whether on account of the insect and other pests which we have to treat, it is not desirable to plant dwarfs in Ontario, is of course still problematical, but it is evidently worthy of consideration and perhaps should be well tested at our fruit stations.

A WONDERFUL APPLE CROP.

"APPLES can be made to pay," said Mr. E. D. Smith, Winona, "and the success of Mr. Joseph Tweddle, Fruitland, in taking in hand several orchards which had been neglected by the owners until they were a mass of wood, tangled together and left without defence to the ravages of insects and fungi, is a proof of my position." A few years of careful cultivation, pruning and spraying had brought these orchards into fruitfulness, and well repaid Mr. Tweddle for his speculation, and the owner for his investment.

Mulching versus cultivation for an apple orchard was also discussed, and, as Mr. Smith stated, the former is no doubt ideal, providing a sufficient quantity of material is at hand. It saves a great deal of labor and it does not injure the tree roots. Mr. Race objected strongly to deep ploughing in an orchard because it disturbs the young rootlets which are at work drawing moisture and nourishment from the soil.

In illustration of what can be done in apple growing, if the orchard is properly cultivated and sprayed, Mr. Smith cited one he had visited by request last summer. It was situated in New York State between Lockport and Rochester. He found fifty acres of Baldwins, every tree a picture and carrying over ten barrels to a tree. There were only twenty trees to the acre, but they reached an immense size, and were weighed to the ground with their enormous load of apples. It was estimated that the yield would not be less than 10,000 barrels of apples, and all perfectly free from scab; the crop must have given the owner a small fortune in a season like this when prices have ruled so high.

The only explanation of this phenomenal success given by the owner was, that for the past seven years he had sprayed regularly and faithfully; for previously he had had very little fruit, but since he had given his orchard this treatment, he had never failed to have a good crop.

GOOD VARIETIES OF GRAPES.

MR. E. D. SMITH, of Winona, was asked to talk on "What varieties of fruit to plant to suit the requirements of the trade." In speaking of grapes, he believed that the destruction of grape vines by the cold winter three years ago had not been made up by the planting since that time, and consequently the price of this fruit had advanced, until wine makers even had been offering $25 a ton for Concords. At this price he believed there was money in growing this variety. Compared with Niagara he had more confidence in the Concord, unless on certain rich soils in southern parts of Ontario; but, generally speaking, the Concord was more reliable. He had himself planted an acre of Campbell's Early which had this year borne its first crop. The fruit was as early in ripening as Moore's Early, the vine seems to be productive and the berry is large and of much better quality. The only defect he had observed was, that occasionally a vine had clusters with a good many small green berries, and only for this defect he would be inclined to plant this variety in preference to any other. Lindley was too uncertain. In his vineyard of 1,000 vines he had gathered one year an average of 30 pounds to the vine, for which he had netted 4c. a pound or $1,200 for the crop; but for the succeeding two years he had only harvested about 3 pounds to the vine. He had therefore lost confidence in this grape for profit. Vergennes was profitable, but was subject to leaf blight, which, however, could be controlled by use of the Bordeaux. Of the Rogers grapes he thought highly of the Agawam, especially for sale in the Niagara district to buyers who want a good shipper. It keeps and it carries well and is therefore very suitable for sending to the North-west. In other places, where it was sold for table

use, it did not bring as high a price as its merits deserve. The same could be said of the Wilder, a much superior grape to the Concord, but in the Montreal market it sold for only about 1 cent more a pound than the latter variety, with which it is not to be compared in productiveness.

SPRAYING.

THE varied duties of the farmer, in Mr. Race's opinion, made it very difficult for him to find time to spray his apple orchard as often as is laid down in the calendars, and, since the early sprayings are the most important, he recommended that the farmer be urged to treat his trees to at least three applications, (1) with copper sulphate before the buds open, and (2) with Bordeaux as the bloom falls, and (3) again about two weeks later. "Of course," said he, "the fruit grower, who has *nothing else to do but grow fruit*, should give his trees several more applications!"

Of course the Bordeaux is much more troublesome to prepare and to apply than a simple dilution of copper sulphate and water, which may be equally effective for the first application if every part is covered. The addition of the lime, however, shows at once what portion of a branch is covered; besides it remains upon the tree a longer time.

As to the quantity of copper sulphate to use in the early applications, without lime, it has been usual to advise for Downy mildew and black rot of the grape and for the apple scab, 1 pound to 5 gallons of water, to be applied in winter or before the buds swell; and for peach leaf curl, 1 pound in 25 gallons of water. Fulton, of the Michigan Station, has been experimenting with copper solutions of varying strength for peach curl, and found that trees sprayed early with 1 pound of copper sulphate to 100 gallons of water showed no more curl than trees sprayed with 1 pound of copper sulphate to 20 gallons of water.

PLUMS OVERPLANTED.

FROM the low prices obtained for plums in our markets for several years past it is evident that we are planting too many; more than our home markets can take at paying prices. If we had an export trade in them, as we have in apples and in pears the case would be different; but even if our cold storage conditions would land them safely in Great Britain, they are not wanted there at prices that would pay for such a long shipment. Our only hope for an outlet for this fruit seems to be in the great North and North-West, as soon as better rates and conditions of carriage are provided. "In dry seasons," said Mr. Smith, "when the plum is not much effected by rot, we can handle the crop fairly well, but in wet seasons when the rot is prevalent, we can not dispose of the crop." There is room for a large quantity of Reine Claude and other plums of the Gage family for canning, for there is an unlimited market for "canned gages" both in the home and in the foreign market. Then there is another class of plums for which Mr. Smith finds a good demand, viz., such good late varieties as Monarch, Grand Duke, Black Diamond, etc. These are large and of good quality, and are suitable for shipping North and West. Then there is the Damson, a variety too much despised because of its small size; but there are people who will have this plum, and it would pay to grow more of them than we do at present.

THE KIEFFER PEAR.

"HOW is it?" some one asked Mr. Smith, "that Kieffer pears have been so unsalable this year?" "Well," he replied, "I do not think it is because they are overplanted; I think it is because of the enormous apple crop; and the canners were so busy canning up the immense quantity of seconds which they could buy at low prices, that they had no time to go into the pears.

The Kieffer is used chiefly for canning; indeed, there is no pear that is superior to it for this purpose, not even the Bartlett. As a matter of fact canners label their canned Kieffers, Bartlett, because when put up they cannot be distinguished by the public from that variety, either in appearance or in flavor. So I do not see that we need expect to see Kieffers sold again at as low a price as they have been this year." "Do you think," asked Mr. M. Pettit, "that all the canners in the country could possibly handle the whole crop of this pear that will be produced five years from now? The pear will never find sale in the open market for eating purposes, and must be grown for canning only, and I am afraid it will be a drug on our hands." Mr. Pettit spoke from personal interest, for he has one of the largest Kieffer orchards in the section. "Well, I cannot say," said Mr. Smith, "but I think it is a great mistake for fruit growers to change their notions on varieties so often. One season's experience of low prices for any special fruit will lead to its utter rejection, when perhaps the year following it will be the best paying fruit in the market. The Longhurst peach did not pay last year, so no one will plant it next spring, but if the Crawford should be a failure next season, then the Longhurst will be in demand, and growers will wish they had included it in their planting."

FOUR EXPORT PEARS.

SIR,—What four varieties of pears would you recommend for export, to be planted near Toronto on high well drained clay loam ?

Toronto. R. BRACKON.

We would place Duchess first ; it is large, of good quality and carries splendidly. Judging from one year's experience, we would be inclined to make Pitmaston second for export. Both these do best grown as dwarfs. Bosc is another excellent export variety, carries finely, and is excellent in quality. The fourth would be Anjou, for it succeeds well in Canada, and carries well. We do not recommend planting plums and pears together ; it is better for harvesting the fruit and for general management of the orchard to have each fruit in a separate plot.

THE EXPORT TRADE IN APPLES IN 1902.

A PAMPHLET has just come to hand showing the exports of all kinds of produce from the port of Montreal during the past year. From the chapter on apples we take the following table, showing how our Canadian apples have been distributed among foreign markets during the past five years :

	1902.		1901.	1900.	1899.	1898.
	Bbls.	Cases.	Bbls.	Bbls.	Bbls.	Bbls.
Glasgow	188,270	33 793	73,093	128 378	128,399	147,624
Liverpool	169 813	7,697	49,058	95 983	99,127	177,334
London	74,630	762	284	12,497	5,126	50,708
Manchester	30,444	269	129	14,271	20,686	32,832
Bristol	6,331	1,125	53	3,231	4,613	17,911
Aberdeen	6,068	.....	1,046	8,601	.....	5 693
Belfast	1,642	3,367	24	4,154	114	1,609
Hamburg	1,829	2,120	26	32	8,661	1,714
Cardiff	2,370	.....	.....	.....	.....	.....
South Africa	250	1,828	.....	.....	.....	.....
Leith	458	183	2	158	1,179	.. ..
Antwerp	36	.....	.....	.....	.....	.....
Others	1,359	.....	22	374	335	1,251
Totals	483,496	54,144	123,737	267,701	267 359	436,236

For a great many years Liverpool, London and Glasgow were the only foreign points to which our apples were consigned, but of late one port after another has been calling for them until now we have before us the choice out of at least a dozen foreign markets competing for our shipments. This competition, together with the improved methods of growing and packing, which our association is rapidly bringing about among Ontario Fruit growers, means much for the future in apple growing in Ontario. Among the more recent markets calling out to us for increased shipments of apples, is Hamburgh, a distributing centre for the great cities in the interior of Europe. As a rule green apples are not much in demand in Hamburgh, because green cooking apples are produced in great quantity in Germany; but our fancy red stock is highly prized. Mr. Tweddle of Fruitland, however, says that his shipments of Greenings have created a great impression on account of their excellent quality, and he believes he will succeed in working up a demand for this variety.

Of the markets for our apples which have opened up during the season just passed is the great country of South Africa, to which a shipment has been made of 250 bls. and 1828 boxes, Burlington and Grimsby contributing. We shall await the results with great interest.

In the pamphlet referred to, credit is given to the Canadian Fruit Marks Act for the establishment of the Canadian XXX, or No. 1, brand as fairly uniform, a thing that has never been known before. This brand seems likely to gain the confidence of buyers in foreign markets, and to lead to f. o. b. sales, at shipping points in Ontario, a condition which will be of the utmost value to our fruit growers.

THE NIAGARA DISTRICT FRUIT GROWERS.

THIS body of practical fruit growers met at St. Catharines on Saturday, the 3rd of January, and in the election of officers for the new year chose Mr. D. J. McKinnon, of Grimsby, president, and Mr. C. E. Fisher, of Queenston, secretary. The Fruit Marks Act was criticised, (1) as causing many growers to be afraid to pack their own apples, and (2) as leading many growers to mark their first-class apples No. 2, in order to be quite safe from the dreaded inspector; and (3) as being a violation of individual rights. Inspector McNeill was present and explained that the inspectors were the friends and not the enemies of the fruit grower, and that there was no inclination on their part to prosecute except in cases where there were evidences of intentional fraud. On the whole, a general feeling of approval of the Act prevailed, unless with regard to one or two minor clauses, which may be more carefully considered at a later date.

THE TRANSPORTATION OF FRUIT

WAS one important topic under discussion, and it resulted in the appointment of Mr. D. J. McKinnon, the president, and Mr. W. H. Bunting, president of the Ontario Fruit Growers' Association, as a delegation to Ottawa, in company with the representatives of other bodies, to urge upon the Government the appointment of a Railway Commission.

The discussion on this subject was ably introduced by Mr. W. L. Smith, Secretary of the Farmers' Association and Editor of the Weekly Sun, and from his address we take the following points:

"The importance of the question of transportation to the Niagara fruit-growers is indicated by the statement that the district is producing about $2,000,000 worth of fruit annually, and that practically all of the fruit is carried to market by rail. Under present conditions the railways are able to say how much of the price received for the fruit produced shall go to the grower and how much shall be retained by the carrying company for taking it to market.

AN UNFAIR DIVISION

"Are the rates charged for carriage fair rates? Growers say, taking the season through, and lumping express and freight rates together, that the carrying companies receive for carrying fruit to Montreal one-third of the return which the goods sell for on arrival.

"In other words, the fruit-grower, who takes all the chances of the season, who produces crops on ground valued at town lot prices, who pays a wage bill equal to that of a fair-sized factory, receives $2 as against $1 received by the carrying company (which takes no chances) out of every $3 worth of fruit produced. Surely that is not a fair division.

"Ten or twelve cars of fruit are picked up in the district daily; when carriage is by freight the average rate is about $60 per car; the cars, as part of a mixed train, are taken to Montreal in 36 hours. Surely $600 or $700 is altogether too much to charge for hauling ten or twelve cars of fruit some 400 miles in a day and a half, particularly since these cars form part of a general freight train.

COMPARISON WITH RATES ON OTHER PRODUCTS.

"The rates charged on fruit are excessive as compared with rates on other forms of produce. A rate of 34 cents a barrel on flour was quoted last week from Listowel, Ont., to Bristol in England. At the same time the rate on apples was nearly 90 cents —almost three times as much as the flour rate. Apples receive no better care in transit than flour receives. Last fall Mr. McNeill saw stacks of apples in barrels, while awaiting shipment, standing in the open, exposed to a downpour of rain, at stations in Western Ontario. Is the lower rate on flour due to the fact that millers have a strong, aggressive organization, which can force concessions from railways, while fruit-growers have not?

"Fruit-growers are not only discriminated against as such, but they are discriminated against as Canadians. Mr. Boulter, the Prince Edward County canner, has been able to secure a rate on peaches from Michigan to his factory in Prince Edward so much lower than the rates from Ontario points, that he found it cheaper to buy peaches in Michigan and pay the duty in crossing the border than to buy in Essex, where no duty had to be paid, and at points a good deal nearer his factory than Michigan is. And still the peaches in both instances were carried over our own lines—lines which have been built largely out of bonuses paid by our own people."

PLANS FOR SPRING PLANTING.

DURING the months of February and March the fruit grower should carefully consider the number and the kinds of fruit trees and plants required to make his business give him the best returns. He will find the most up-to-date notes on desirable varieties in the report of the fruit stations of Ontario, which may be had for the asking from the Department of Agriculture, Toronto, and with these and his own experience no mistakes ought to be made. If a larger order of trees is wanted it will pay to visit the nearest nursery, select the stock of the age and size desired, and secure it at first hand, thus saving the expense of an agent coming about to seek the order, and again to collect the money. If a farmer can plan a year ahead on the varieties required in his orchard, it might pay him to buy young trees, perhaps one year old, and grow them on his own grounds until ready for them, and thus not only buy at a low price, but improve the root system of the trees by the more frequent transplanting, so that there would be no stunting of vigor in the final planting.

The following table, showing the number of trees needed to plant an acre of ground,

may be of service at the present time when so many are estimating how much stock they need for spring planting :

NAME OF TREE OR PLANT	DISTANCE APART	NUMBER PER ACRE
Strawberries	3 ft. by 1 ft.	14,520
"	4 ft. — 1 ft.	10,890
Raspberries	4 ft. — 1 ft.	10,890
"	6 ft. — 2 ft.	3,630
Blackberries	6 ft. — 2 ft.	3,630
Gooseberries	5 ft. — 4 ft.	2.178
Currants	6 ft. — 4 ft.	1,185
Peaches	15 ft. —15 ft.	193
Plums and Pears	20 ft. —20 ft.	108
Apples	30 ft. —30 ft.	48
"	36 ft. —36 ft.	33
"	40 ft. —40 ft.	27

A LEGAL APPLE BOX WANTED.

SIR,—I am instructed by the directors of the British Columbia Fruit Growers Association to ask for the co-operation of your association in an endeavor to induce the Dominion Government to establish a legal box for the sale of apples. The box which we have found to be the most convenient has a capacity of 21 x 10 x 11 inches and we would prefer that capacity made legal, but we are more interested in having a lawful box than in the size of same. If your association will give this matter the consideration it deserves and join us in an appeal to the government to establish a uniform standard box, the question will be settled at the next sitting of parliament and a source of annoyance to dealers and consumers will be removed.

W. J. BRANDRITH,
Sec'y, British Columbia Fruit Growers' Association, New Westminister, B. C.

At the Walkerton meeting of our Ontario Association, last December, it was agreed to adopt an apple box measuring inside 9 inches deep, 12 inches wide and 18 inches long, for export. This is practically the California pear box, and we see no reason for making the apple box different, for many sizes are a nuisance when packing cars. We have been using a fifty pound box, 10 x 11 x 22, of which three filled a barrel, but in Great Britain we found this box was selling for the same as the Tasmania box, which is a forty pound box, and of which there are four to the barrel. We also find that a forty pound box is more wanted in the British market, and for these reasons we adopted the sizes above described.

We propose that all the Fruit Growers' Associations in the Dominion try this box for one year before we ask for any Act of Parliament. In Ontario we can get this box made dovetailed, of ⅜ stuff, for $10.00 per hundred. It will hold three layers of apples, instead of four which we put into our bushel box last year.

DUCHESS PEARS IN GLASGOW.

MR. JOHN BROWN, Govt. Agent, Glasgow, writes: "Grimsby and Burlington shippers have yet to establish a name for uniformity. Some of their boxed fruit I have reported as poor, while other lots are more than excellent. I saw small Duchess pears, which had been held three weeks in Glasgow and were not colored in the least, being immature. Near them I found some of the finest Baldwin apples that have been on any market this season."

Prices for Canadian pears have gone up lately in the British market, in some cases to 8 and 10 shillings per half case. It is needless to say that this will give our Canadian growers a return much above anything they could expect in our own markets.

Mr. W. A. MacKinnon, Chief of the Fruit Division, makes the following comment upon these prices: "It would be folly to expect the same quality of pears to bring the same prices again, for many of the Duchess were simply wretched. Kieffers were fair for the variety, but not equal to last years in quality. They looked well, however, which the Duchess did not. You only need to compare the prices paid for Canadian pears with those for Californian on the same day, to see the relative quality of the Canadian. It certainly will not be safe to send such a quality of pear to this market wben there is the usual supply of dessert pears."

THE FARMER'S WOOD LOT

THE value of a wood lot to a farmer is this year more apparent than ever before, in view of the very high price of fuel. So, during these cold winter days, when the thermometer is at zero, and coal cannot be had at any price, and wood is being sold at prices almost ruinous to the buyer, some of us are conscious of an unusual depth of gratitude to our fathers and grandfathers, who had wisdom enough to save for us a portion of the original forest as a wood lot; and we have a keen sense of comfort in drawing on our fuel supply from a source that is entirely out of the control of miners or operators.

FIG. 2532.

At a recent meeting of the Experimental Union, at Guelph, Mr. R. D. Craig, a graduate of the O. A. C. and a specialist in Forestry, stated that a fair estimate of the average consumption of wood per family is from fifteen to twenty-five cords per annum. It is also estimated that a wood lot will give an annual crop of about three-quarters of a cord per acre. At that rate it would take from eleven to nineteen acres in wood land to keep the average family in fuel. If these conclusions are correct there is probably still a sufficient supply of timber to keep our people in fuel, provided the farmer's wood lot is properly cared for. But Mr. Craig believed there was ground for fear that, unless the present methods are changed, the wood supply of Ontario will be practically exhausted within ten years, and the whole province be dependent upon coal.

With such a warning as this sounding in our ears, surely those of us who have upon our farms a wood lot, small or large, will place greater value upon it, and give it as good attention as we do any other part of the farm. Cattle should not be allowed to roam about in it and browse the young growth, which, if allowed to grow untouched, would be a continual source of supply of trees to replace the older trees cut out for fuel. Anyone, who has walked through his wood lot in spring time, must have noticed the great number of little seedlings of maple and other trees which have started to grow, and which never come to any size where cattle are allowed to browse.

In reply to his enquiries of farmers as to

value of their wood lots, Mr. Craig said their estimates varied from twenty dollars to three hundred dollars, the average being fifty dollars per acre. This he considered a moderate estimate, for said he, with wood worth four dollars a cord, about eighty dollars worth of fuel would be taken out a year, to say nothing of the value of fencing material, etc.

AN INCIDENT IN GRAPE GROWING

BY

ALEX. McNEIL, ESQ.,

ACTING CHIEF FRUIT DIVISION, OTTAWA.

THIRTY years ago a few small vineyards demonstrated what Essex County could do in grape growing, but it was not until the early '80's that the grape fever was epidemic. Hundreds of acres were planted, and the Essex Concord grape became the standard of excellence. Many of these earlier vineyards made money for the owners, and encouraged planting far beyond the needs of the market for table grapes, and the inevitable fall in prices came all too soon.

But the low prices of grapes stimulated another industry—winemaking. A year or two more and winemaking had reached the limit of the home market and was accumulating stock that might, in the ordinary course of events, have impressed the foreign markets, for the largest Essex winemakers did not follow the foolish practice of attempting to imitate foreign wines of all sorts, but made a pure, sound claret, with characteristics of its own, that placed it on a par with the best foreign wines of its class.

No doubt capital would have been forthcoming soon to place this upon the market, had it not been for the unfortunate frost of 1899, that root-killed not only the peach orchards of Essex, but 75 per cent of the vineyards as well. With grapes enough still for table purposes and no great demand from the winemen, there was little encouragement to replant, yet prices were somewhat better and vineyardists, if not buoyant, were at least hopeful.

This, however, was the last gleam vouchsafed to the unfortunate grape-grower. In 1901 the black rot appeared in several of the older vineyards. This year, favored by the excessive humidity of the growing months, the rot made almost a complete sweep. Occasionally a grower might gather a few baskets in some favored spot, but complete and absolute failure was the rule. The writer, with twelve acres of good vines, the remnants of twenty-five acres, did not gather one basket of good fruit. A neighbor, with thirty acres, did not put a picker in his vineyard. The result is that grape growing will cease in Essex except for local markets. Of course the rot can be controlled by spraying with the Bordeaux mixture, but such additional expense would render competition hopeless with sections where the rot is not yet known, and where freight rates are not so high.

And thus will pass out of existence vineyards that once were measured by hundreds of acres, and with them may go some of the fond dreams of the planters. Yet the stern discipline of partial failure is sometimes necessary to develop the full measure of the strength of the individual as well as the greatest capacity of a country.

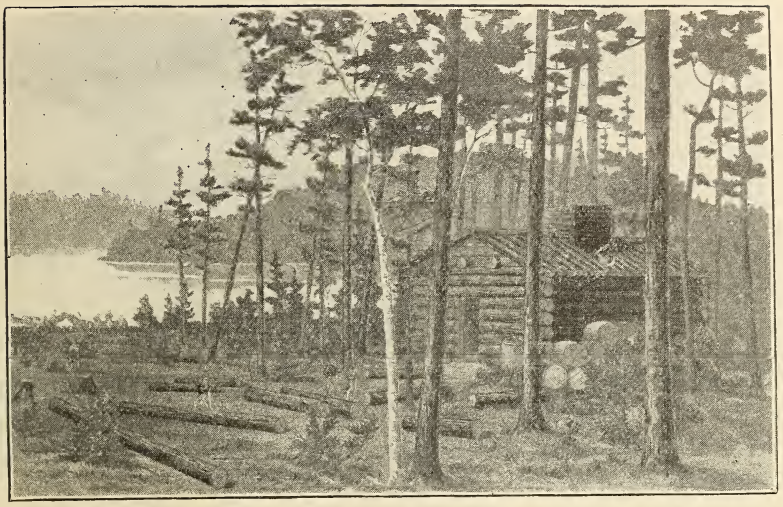

Fig. 2533. A Beautiful Site for Park or Pleasure Grounds.

OUR OLD FOREST TREES

THE engravings which accompany these remarks are taken from the Third Annual Report of the Canadian Forestry Association, a volume which is of great value to Ontario fruit growers and farmers, and may be had free of charge from Mr. E. Stewart, Dominion Superintendent of Forestry, Ottawa. The scene in Fig. 2533 is one that was taken in a Canadian forest some forty years ago, and shows the old style of lumbering, with the "caboose" in which the lumbermen slept and cooked their meals, and which was heated by a fireplace of earth in the centre. Interest in the picture is added in view of the fact that on the recent visit of the Prince of Wales to Ottawa, a shanty of this class was erected for his entertainment, to show the character of a lumber camp in Canada.

This illustration also serves to point out to our readers what unfortunate lack of forethought has hitherto characterized the lumberman's work in Ontario; what utter disregard of the future beauty of the landscape. Here, for example, is a magnificent location for a home or a public park, which is being ruined because no one in authority thinks far enough ahead to take into consideration anything more important than present convenience.

The new settler who has taken up his farm in "New Ontario" is guilty of similar thoughtlessness, and begins to clear a place on which to build his house by destroying all forest trees about it. Grand old maples, elms and pines are recklessly cut and burned, which, if left in groups around the boundaries of the house yard or in single specimens here and there, at the side and rear, would in time come to be recognized as the chief ornaments of the homestead, and worth hundreds of dollars each.

The very abundance of these magnificent giants of the forest in Ontario lead to their wanton destruction, while on the vast naked plains of the great North-west, what would the settler not give to have these fine old trees with which to shade his home and give

beauty to its surroundings? The two other engravings we use because they serve to show in a most striking manner how important a clothing of trees is to the surroundings of a home. The first shows the home of Mr. S. A. Bedford, Supt. of the Experimental Farm at Indian Head, N. W. T., before any trees were planted, while the other shows the wonderful effect of a successful attempt to beautify the same with certain hardy varieties of trees and shrubs.

FIG. 2534. BEFORE TREES WERE PLANTED.

Granted that, as in this instance, a wonderful effect can be produced within a few years by recent plantings, yet, never in any man's lifetime, could these magnificent old trees be replaced, which now, in so many instances, are being cut down without the least hesitation in our province.

FIG. 2535. AFTER TREES WERE PLANTED.

NEW FRUITS.

THE MAYNARD is a new plum of Luther Burbank's, which will be sent out next spring. It is claimed that this one surpasses, in quality and beauty of fruit, any plum Mr. Burbank has yet introduced. We notice that nothing is stated regarding its productiveness, and this has been the disappointing feature with that otherwise excellent variety, the Wickson.

THE BING CHERRY is not yet tested sufficiently for us to give any definite statement of it. It is a large, dark red or purplish cherry of the heart-type, which originated with Seth Lewelling, of Oregon.

THE CARMAN PEACH, which is of the North China type, is of Texas origin. It is of most delicious flavor and of large size, and is said to succeed well in the Northern peach section.

CANADIAN PEARS IN THE BRITISH MARKET

MR. W. H. COARD, Dept. of Agriculture, Ottawa, writes as follows: From the reports of the Government agents at Glasgow (Scotland) it would appear that our Canadian pears are at last receiving that appreciation which they deserve. The earlier shipment of Clapp's Favorites and Bartletts were not altogether successful ; indeed, it can be taken for granted that Clapp's Favorite cannot be successfully shipped and should not be planted as an export pear. The Bartlett, under favorable conditions, does better, but cannot be depended upon, nor is the market likely to be so good at this season of the year; but our later shipment of Duchess, Sheldon, Anjous, and even Kieffer, have been quite successful. None of the varieties, however, are likely to equal either in profit to the grower or satisfaction to the buyer the Duchess. This pear combines in a rare degree excellent shipping qualities and good table characteristics, and the reports, especially from Glasgow, this year have been most encouraging.

Mr. John Brown, Dominion Government agent at Glasgow, has reported a dealer as stating that "after keeping the Duchess for fully ten days he found this pear to ripen nicely, adding, "I am well pleased with the way these pears have turned out, and am looking forward to getting some of the next shipments." Mr. Brown adds, "another party, who had fifty cases, kept them in an ordinary cellar for over a fortnight—from October 31st to November 15th—and was delighted with the way the fruit came up. He expressed the opinion that they were very much better than the late varieties of French pears that he had been getting."

One large Glasgow dealer recently purchased over 300 cases of Duchess pears at from 90 to 96 cents, and after keeping them for a couple of weeks sold every case at from 120 to 132 cents each. These pears were beginning to color splendidly. Another dealer in the same city, after keeping twenty cases for ten days, in a warm banana house, disposed of them at from $1.32 to $1.44 each, and the buyers were well satisfied with the bargain. In fact, the entire shipment was a complete success, and should stimulate emulation amongst pear growers on this side.

One noticeable feature was the appearance of the pears in the cases, those wrapped separately in paper showing up to much better advantage than those packed without wrapper in the case. Mr. MacKinnon desires to express the opinion that the less "Excelsior" there is used in packing pears the better, a little at top, bottom and sides of the case being quite sufficient. "I am certain," the gentleman adds, "that the next arrival of Canadian pears in the old country will realise better prices than the last, because buyers were dubious about the fruit turning out all right."

Exporters will do well to remember that the large Duchess pears would have done better had they been more matured. After being kept a short time the prices realised for them increased by from 36 to 48 cents per case of 20 pounds. This has reference to the large Duchess only, the small Duchess not ripening up nearly so satisfactorily.

Taken as a whole, this report is very satisfactory, and, looking at the large market in the United Kingdom for fruit all the year round, future consignments from Canada, if they maintain the quality of that under notice, will meet a ready sale, and will fetch higher prices than those quoted here.

A BRITISH HORTICULTURIST

SOME ACCOUNT OF HIS RECENT VISIT, AS GIVEN IN THE GARDENER'S MAGAZINE.

IT WAS with much pleasure that we received a call during the autumn from Mr. Joseph Cheal, of Crawley, Sussex, England. Though his stay was brief, it was yet long enough for him to make a somewhat careful survey of our methods of fruit culture, and take some photographs as mementos of his visit. Being a member of the Royal Horticultural Society, he promised us an introduction to some of its most prominent members should we visit London, so so that we might gather some interesting items for our readers.

In a paper, which he entitles "Rambles in the States and Canada," we find the following references to our country :

"As I wished to spend as much time as possible in Canada, I took the steamboat up the Hudson River, and travelled as far as Albany, and had a most lovely sail through picturesque and historical country. Passing on by rail from here to the Falls of Niagara, a day was spent there with some English friends whom I accidentally met, and the journey was continued in company with them by steamer across Lake Ontario to Toronto. Here I stayed amongst friends for a week.

"Several days were spent in visiting the principal fruit district of Ontario. This is a strip of land about a mile wide, extending for over twenty miles round the shores of the lake, backed up and sheltered by the high cliff behind. I was surprised to see the thousands of acres of flourishing orchards and vineyards of this district, peaches growing in the same way as our apples, and grapes trained on wires, and to find that these orchards are most carefully cultivated, and kept remarkably clear from weeds and blights. A Government Inspector of Fruit accompanied me through these farms, and from him I gained much information, and I had the pleasure of meeting Mr. Orr, then president of the Fruit Growers' Association, and a keen and successful cultivator. Another enthusiastic grower and experimenter in the same district is Mr. L. Woolverton, M. A., who is the editor of the "Horticultural Journal" of Canada, and is also preparing what will evidently be a standard work on fruits.

"An extensive fruit nursery conducted by Mr. E. D. Smith was visited, and also a fruit collecting depot, where large quantities of fruit grown in the district are collected, graded, packed and forwarded to various markets. A large refrigerating chamber is provided for soft, perishable kinds.

"I then passed on to Ottawa, a beautiful and flourishing city. An introduction to Professor Robertson, the Commissioner for Agriculture, led to an interesting conversation about their experimental work, and I spent a most profitable day with Dr. Saunders, the able director of the experimental farms and gardens of the Dominion. This experimental work is most carefully carried out, and fully reported on, and the reports must be of great value to both old and new settlers.

"As I am much interested in the different systems of packing, storing and freightage of fruit, an introduction to one of the directors of the Canadian Pacific Railway, Sir Sanford Fleming, led to an interesting talk with him in travelling from Ottawa to Montreal. I gained from him much about the progress and prospects of the Dominion. He said that immigration had been larger this

season than any year previously, and that from the States they had had an influx of 24,000, and that their company had sold one million acres of land.

I had thought the long, cold winters almost an insuperable barrier to successful cultivation, but the Canadians assure me it is not so bad as we imagine, and that the snow on land and ice on the lakes and rivers opens up roads for hauling which are impassable in summer, and though the frosts are very severe, the wood of the trees is so well ripened that it escapes uninjured ; and the air is so dry that it is not unpleasant to human beings.

The return journey was made from Montreal by the Allan line, and the steam down the St. Lawrence, past Quebec, is a very pleasant one, and somewhat exciting in shooting the Lachine Rapids above Montreal. We could not take the northern route, as the straits were blocked with icebergs, and in passing out to the south of Newfoundland we saw the floe ice breaking up on the rocky coast."

BEN DAVIS STILL ON TRIAL.

POOR old Ben ! We fear his days are numbered as heading the list of most profitable commercial apples. He has had very enthusiastic defenders, but their defence has been largely based upon his good looks, and his critics are probing beneath the surface and say he lacks in intrinsic merit, and that he cannot stand the test of time. And now that his family has become so numerous, it is evident they are held as very common sort of folks.

In Green's Fruit Grower, for example, we find J. L. Burton asking :

"Shall we go on setting the Ben Davis apple as we have been doing here in the Western and Central States for many years past ? The buyers are beginning to complain of too many of this old favorite moneymaker and we are in doubt of the proper thing to do about planting the trees."

And Mr. H. E. VanDeman replies :

"There is no doubt that the millions of bushels of Ben Davis apples grown in the Mississippi valley, and farther westward, have made a great impression upon the markets of this country and Europe. It is the greatest of all our apples for business purposes, but not so much can be said of it in point of real value by the consumers. They want something better to eat and are demanding it. They are willing to pay for it, too.

"When I was in the states of Oregon and Washington two years ago I found a rising sentiment against 'Old Ben,' not only among the people who ate them but on the part of the dealers. They would scarcely take a big lot of this variety unless there were some Jonathan, Newtown, Rome Beauty or other good kinds to go with them. The good ones had to help bad ones. The same state of things now exists in the Central states. There is a fair apple crop in Missouri, Kansas, Illinois and that whole region, and in the big markets, such as St. Louis, there is an over-suppply of Ben Davis apples. They bring little more than half the price that Winesap, Jonathan, Huntsman and other varieties of good quality do.

"My belief is, that those who are setting orchards will do well to take warning from these practical pointers from the business world and plant less of Ben Davis—and the same is true of Gano, which latter is no better in quality—and plant more of the really good apples. There will be more money in them in time to come, although for late keeping and the rough-and-tumble of the market 'Old Ben' will long hold a prominent position."

And in Coleman's Rural World, Mr. P. M. Kiely, of St. Louis writes :

"The publication in your journal a few weeks ago on my letter on the Ben Davis apple has brought to the front a number of defenders of old Ben. Strangely enough the parties coming to the rescue of this declining apple are those having large Ben Davis orchards—many of them planted years ago when this variety had more claims to recognition than it has now, or ever will have again. It is natural for a man to set a high valuation on his property and of course such people frown at any statement that reflects on their judgment or orchards. An apple dealer in Kansas City who is loaded to the guards with Ben Davis makes a hard fight for it in a communication to several trade journals patronized by dealers. The gentlemen declares he has letters from many states calling for Ben Davis but he neglected to add that it was useless for them to ask for any other variety and that they were looking for the low figures likely to arise where the Ben Davis were so plenty and all other varieties so exceedingly scarce.

"At the late meeting in this city of the National Apple Growers' Association I met a large number of men whose orchards unfortunately were composed largely of Ben Davis. Most of them admitted to me that if they were planting again they would raise more varieties that could be acceptable in every market and worthy of the patronage of all—something that would command good prices regardless of how low Ben Davis figures were. Other growers thought I wanted them to root out all their Ben Davis orchards—an idea I never entertained. A number of these gentlemen submitted what they regarded a knock out argument in 'What will you give us instead—what will take its place?' Now there is no necessity for seeking or presenting any one variety but as I stated in my former article, several and not one variety should take its place. W. T. Flourney of Marionville, Mo., one of the most successful fruit growers in the state and who owned too many Ben Davis trees to condemn them, acknowledged that the article would doubtless change many existing ideas and was especially valuable to those contemplating setting out new orchards. In fact nearly all submitted there was enough already planted and it was time to call a halt on the Ben Davis, because if another tree is not planted in the next twenty years, the western markets will remain deluged with it during all that time, because hundreds—I might say thousands of orchards are composed mainly of young Ben Davis trees."

CHIEF MACKINNON ON THE BEN DAVIS APPLE IN GREAT BRITAIN.

MR. W. A. MacKINNON, Chief of the Fruit Division of the Dominion Department of Agriculture, writing from England with reference to the Ben Davis apple, states that the enormous surplus in the western and south-western States is more than likely to lead to the increased export of the Ben Davis, especially in view of the fact that a large area of newly planted trees will soon be contributing to the tide, which, according to Mr. Keely, is already backing up.

"I am no enemy of the Ben Davis," writes Mr. MacKinnon, "but their quality is beginning to be better, or 'worse', known here in England, and our own growers must be on the alert and stop planting, or begin to graft as soon as the situation demands it. If our neighbors to the south are trapped that is the time for us to shoot ahead with large consignments of high class apples in sound condition."

TILLAGE FOR THE ORCHARD

II.--PREPARING ORCHARD LAND TO RETAIN PRECIPITATION OF THE FALL AND WINTER.

BY

PROF. J. B. REYNOLDS,

OF O. A. C., GUELPH, ONT.

THE first preparation of orchard land for the retention of moisture should be done before the orchard is planted. Good underdrainage is the prime essential. Without this, subsequent efforts at good tillage will be more expensive and less effective. Good underdrainage prevents destructive surface washing, and increases the water content of the subsoil. If there is good natural underdrainage, artificial drainage is not necessary ; but it must be seen to, before the trees are planted, that good drainage is provided.

A second step in the preparation of the land previous to planting, is deep cultivation. By this, I do not mean deep plowing, necessarily, although I see no objection to deep plowing for the purpose. At any rate, the loosening of the soil to as great a depth as possible—however it is to be accomplished —is the operation required. This operation, in common with drainage, produces permanently good results. It allows more water to enter and be retained by the soil. But especially, it enables and encourages the tree roots to strike deep into the soil, into a region where they are safer from the extreme frosts of winter or the extreme droughts of summer. The roots that run along just beneath the surface of the soil draw their moisture more largely from the chance showers of summer ; while those that penetrate more deeply draw steadily supplies from below, and are not dependent upon the occasional and uncertain supplies from above.

With regard to subsequent operations, there are three methods in vogue for treating orchards, which will be discussed in turn in their relation to the question under consideration, namely, retention of moisture. The three methods are : sod, clean cultivation and cover crops.

SOD IN ORCHARDS.—This article is not to be taken as, on the whole, commending sods in orchards. Here, the object is to point out the effect of sod in retaining moisture in the fall and winter. The covering formed by surface roots and the dead grass helps to prevent surface washing. Also, the grass roots penetrating the subsoil help to keep the ground pervious, and therefore increase the amount of water taken into the soil. In the third place, grass encourages the presence of earth worms, which burrow into the ground, and have a very beneficial effect in keeping clay orchards porous and mellow. Thus, directly and indirectly, grass has a good effect in helping the soil to retain moisture.

If, however, the grass is eaten bare and the ground trodden hard by animals pasturing in the orchard, these beneficial effects will not follow.

CLEAN CULTIVATION.—By this method no crops of any kind but trees are allowed to grow in the orchard. Weeds and grass are kept down by continuous cultivation during the spring and summer. For fall preparation, the proper treatment of the bare orchard is to turn the ground up loose and ridgy, to catch and hold the precipitation, and to prevent snrface washing.

This method of continuing clean cultiva-

tion throughout the year is open to many objections. The bare ground offers to the tree-roots little protection from the severe winter frosts. There is danger, with the less hardy varieties of fruit trees, of winter-killing. With bare cultivation, the soil is very likely to become depleted of humus, a most necessary constituent for conserving moisture and good tilth. Also, with this method of cultivation the land is subject to surface washing and leaching of plant food by the heavy rains of fall, winter and early spring. On the whole, therefore, continuous clean cultivation is not to be recommended, either as a general expedient or as an aid to storing up moisture in the soil during the inactive season.

Cover Crops.—By 'cover crop' is meant a crop sown late in the summer, allowed to stand as a cover for the ground during the winter, and plowed down early next spring. The cover crop protects the roots of trees in winter. It prevents washing, and during rains and thaws holds the water at the ground surface long enough for the water to soak into the ground. The roots of the cover crop penetrate the subsoil to a greater or a less depth, according to the variety of crop, and generally have a beneficial effect on the conditions of the subsoil. The growing crop "fixes" the soluble plant-food in the soil, and instead of allowing this food to leach away, the cover crop absorbs it in the fall and returns it to the soil the next summer, after being plowed under for green manure. Lastly, the annual addition of green manure to the soil enriches the soil greatly and improves its tilth and water-holding power by the conversion of green manure to humus. It may be seen, therefore, that the cover crop is favorable for general purposes as well as for the special purpose which forms the subject of this paper.

The next paper of this series will deal with cultivation during spring and summer.

ONTARIO FRUIT IN WINNIPEG

CULLS GOING FORWARD—A BAD IMPRESSION GIVEN.

I NOTICED in last week's "Grocer" what Mr. A. McNeil, our chief in the fruit inspection division, has to say to the Ontario fruit grower. Situated as I am here, I have an opportunity to see something of both sides, and really, Mr. Editor, it is awful. If I am prejudiced at all, it is in favor of Ontario. Ontario is my old home. I have been up and down its roads and lanes, in and out its ways and by-ways; I have plucked its fruits and gathered its its flowers, and really, it gives me pain when I see some of the packages that come up here marked "*Choice Ontario Apples.*"

It is no use mincing matters. If you have space to spare, please give the following samples of what is not at all uncommon in my experiences the past season:

One firm that claims to be the largest growers of a certain variety of apples and pride themselves on their reputation, sent a carload of apples here. Now mark—their own growing and packing. Out of one of their barrels I took some samples and sent to the Department at Ottawa, which issued the following statement regarding them: "20 of these apples weigh only 28 oz." The report then went on to speak of the shamefulness of such practices. Another very large firm sent a car of apples here, two barrels of which I picked over, and this is the result: 1st barrel, 74 good, 54

culls; 2nd barrel, 76 good, 53 culls; 15% of inferior is the limit, even if graded No. 2. They were prosecuted and fined, two other cases being found against them in another city.

One very large shipper, grower and an altogether prominent man in horticultural circles, has been sending considerable quantities of apples and other fruit to this country last season. I happened to catch a car of his apples at Brandon, but had only an hour in which to hunt up the car, make the inspection, and catch my train. Fortunately the car was at the platform and I got out six barrels. Two of them were Jenettings, and not worth forty cents a barrel. I have seen peaches out of the baskets stamped with this man's name, and they were not worth a shilling a bushel. They were about the size of walnuts, and every bit as rough.

But the funniest and yet perhaps the most pathetic thing about the whole business from a moral point of view is this. A. R. C. being (as I am told), a contributor in the making up of a carload, the apples he himself furnishes being liable for two different reasons to subject him to prosecution, while many others of the lot from other sources are so bad that some of them would not bring the price of freight charges—this A. R. C. writes the unfortunate receiver of the apples to pay up or be sued.

Mr. Editor, these are not Arabian Night or fairy stories, but downright sober, solemn truths; truths that I might vouch for in every particular, and are but a fine cut of many. It is no use to use bad language, indeed one must not for cold type, but seriously, what are the Ontario people going to do about it? Supposing British Columbia had no apples to send to us, is there not a higher motive and a better reason why this should not be continued? Scaring a man into packing his apples right is something like scaring a man into religion because he is afraid of Hades, and will only last while you keep him scared, and I have it on good authority that a large proportion of that class backslide.

I trust the motive which inspires this letter will not be misunderstood. I beg to assure your readers that it is purely a case of "Nothing extenuate nor aught set down in malice." As I have written to another periodical in another letter I know something of the difficulties that had to be met this year.

Hoping I have not trespassed on too much of your space, I remain, yours truly,

J. J. PHILP,
Dominion Fruit Inspector.

ORIGIN OF FAMOUS APPLES.

AT THE recent Shaw banquet in St. Louis, Albert Blair, responding to a toast said:

I am glad that the first Congress of American Apple Growers has been held in this city, in the state of Missouri. We owe much to other states for their achievements in apple culture. Massachusetts gave us the Baldwin, the apple so much prized by our friends in the east; New York gave us the Northern Spy and the Newton Pippin, the latter said to be the king of apples; New Jersey gave us the Belleflower and the Maiden Blush; Virginia, the Albermarle Pippin and Grimes' Golden; Kentucky, the Ben Davis, unequalled for profit; Missouri has produced the Missouri Pippin and the Huntsmen's Favorite, and is herself first in rank as the land of the big red apples and of the big yielding orchards that produce them.

WORK ON FRUITS AT THE SCHOOL OF HORTICULTURE.

THE students at the School of Horticulture, Wolfville, have been taking up a study of varieties of pears adapted to Nova Scotia. The class was divided into committees, and to these committees were referred all of our principal varieties of pears with instructions to secure all possible information regarding them from those who have grown them here and from books and periodicals. The points investigated covered such questions as the habit of growth of tree; whether it grows best as a dwarf or a standard; age of coming into bearing; is it an abundant bearer or not; is it a profitable pear to grow for market; what are its failings? Local authorities such as Mr. R. W. Starr, Mr. A. H. Johnson and others were consulted and their testimony was given first place as showing the value of the different varieties. Then Downing, Warden, Thomas and other writers were consulted and lastly the bound volumes of the Canadian Horticulturist, Country Gentleman and other periodicals in the school library were searched for information on the various sorts. At the appointed meeting of the class the committees reported on the different varieties, and each student took notes for future reference. The same plan is now being followed with our principal apples. Specimens of all of them have been examined in class, and each student has described them and tested them for himself. Now they are referred to the committees, who will report later the judgment of our growers on the strong points and the failings of all our standard apples, together with any new and promising candidates for public favor.

W. H. DEMPSEY, Trenton, writes:—The Niagara grape has been fruiting here for some years, and is considered a success in this district. It ripens well, and takes well in the market; in fact it is about the only white grape grown. The vine will winter on the trellis about nine years out of ten here. It is inclined to set too much fruit to ripen well some years.

ELLWANGER & BARRY, Rochester, N. Y., are introducing the Gans pear, of Ohio origin. It is declared to be a valuable addition to the list of early pears, in season between the Tyson and Bartlett.

PRUNING KIEFFER PEAR TREES.—One of Delaware's prominent fruit growers, J. J. Rosa, says that he cut his six-year-old Kieffer pear trees too much. As an experiment, he left one tree to compare with those he had pruned. Last season from the unpruned tree he got eleven baskets of choice fruit, while none of the others bore more than four or five baskets. He believes he lost at least 3,000 baskets of pears by too severe pruning in this orchard, and does not advise severe cutting of young Kieffers.

THE MACDONALD APPLE.—A sample of this new apple was received on the 24th of January, 1903, from Luke Bros. Co., Montreal. In appearance the sample strongly resembled a very fine sample of Ben Davis, but the quality is much superior. If the tree is healthy and productive, we would expect this apple to prove one of the best commercial apples for Quebec, that is judging from this one sample. It is said to be a native of the Province of Quebec.

HYDRANGEA PANICULATA GRANDIFLORA

AMONG the plants to be sent out among the readers of this journal, next spring by the Secretary, Mr. G. Creelman, is this hardy hydrangea, which deserves a place on every lawn in Ontario. It has now been fully tested, and has proved hardy in the fruit districts of our province. At Maplehurst we have had a bush in flowering for several seasons, and Mr. Jas. Goldie, of Guelph, states that it has stood a winter temperature there of 40 degrees below zero, and has come out perfectly unharmed. This is very remarkable because the other varieties of Hydrangea, such as Thos. Hogg, Otaksa, Hortensia, etc., though most beautiful in flower are too tender for outdoor planting in Canada; even the wild Hydrangea, (H. arboréscens) is only found in Pennsylvania and southward.

Our engraving shows one of its immense panicles of bloom, which is made up of hundreds of florets, which continue to grow and develop for six weeks or more, changing gradually from ivory white to pinkish white. The late flowers dry up, and take on a rich brown color, when they are desirable for winter bouquets.

The Hydrangea is very susceptible to the influence of drouth, and in dry seasons, especially if in light sandy soil, it should be well mulched, and occasionally thoroughly drenched with water. The great point in its culture is to keep up a good vigorous growth, which will usually be succeeded by g eat masses of bloom in the autumn. In dry seasons our hydrangeas suffer most

FIG. 2536. HYDRANGEA PANICULATA GRANDIFLORA.

severely from lack of such treatment as we have described, the leaves drooping badly, and the flower clusters failing to reach their full development.

For a conspicuous place upon the lawn, either as a single specimen, or in a group, it is one of the most desirable of all shrubs. Its time of flowering is in August or September when there are very few other shrubs in bloom, and then there is nothing that can in any way compare with it.

Mr. A. H. Ewing, of Woodstock, Secretary of the Canadian Horticultural Association, speaking of Hydrangea paniculata grandiflora says: "No shrub pays better for good treatment and good feeding than this. Young plants should be planted in the spring, in good rich soil that has had lots of well decayed manure dug in, and they should be kept well watered during dry weather; when in full growth they may have liberal doses of liquid manure. With this treatment they are sure to have large panicles of flower towards the end of the summer. They should be well cut back every year, before the buds begin to swell, leaving only two or three strong eyes to each shoot, except, perhaps, in order to shape the plant, when more may be left, but the less eyes left the stronger will be the growth. It is a most beautiful shrub, and will well repay all the attention bestowed on it. The flowers last a long time—well into October; it should be in every garden. Here is a description of a round bed of them at Elizabeth, N. J., taken from the *American Florist*:—

"The bed was 25 feet in diameter, and contained thirty plants, the centre plants reaching to a height of eight feet. The plants will be seven years old next spring. They were in bloom August 1st, and made a handsome show for two months. When at their best there were two or three thousand panicles of bloom, the largest measuring fourteen inches in length and ten inches in diameter at the base."

PLANT FOOD

To induce free blooming and also to economize in space, small pots are more desirable than large ones. When the roots become somewhat pot-bound, the plant grows more slowly, and turns its attention to blooming; but very likely it has exhausted nearly all the available plant food contained in the soil, in making its growth, so if we expect it to give us a generous supply of blossome we must supply needed food at regular intervals. There are a number of "Plant Foods" on the market, and provided one lives near a seed house, perhaps the best way is to buy the prepared food, and use it as directed on the package. The following mixture can be put up at any drugstore, and used as advised will give satisfaction:

Three-quarter pounds Sodium Nitrate, one-quarter pound Sodium Phosphate (dry), one-half pound Potassium Sulphate.

Pulverize the materials and mix them thoroughly (dry). Dissolve one rounding tablespoonful in one gallon of hot water. Let it cool before using; pour the liquid on the soil. One-half teacupful is sufficient for a six-inch pot. Use once in two weeks.

A good plan is to water plants by standing the pots in water hot enough to steam, leaving them in until the top of the soil shows moisture. The warm water at the roots, and steam on the leaves and branches have a very beneficial effect.

FEBRUARY NOTES

FEBRUARY NOTES—NOVELTIES—CARNATIONS—FUCHSIAS — CELLAR PLANTS — EARLY SEED SOWING — GIVING AIR — PROTECTING WINDOW PLANTS.

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH.

FEBRUARY may be fairly termed "catalogue" month, as these useful advance heralds of busy spring time usually make their appearance during this month.

In making your selection of seeds and plants do not discard well tested varieties that have proved useful and suitable, for novelties that often turn out to be miserable frauds or failures. Place the "novelties" down on your list of seeds or plants as "extras," your disappointments will then be felt less keenly, and your successes be an additional pleasure if some new or novel plant or flower of real merit is added to your collection.

Order your seeds and plants early, and avoid the early spring rush, and consequent delay.

WINDOW PLANTS.

CARNATIONS.—Although these are not considered to be really good window plants, yet one sometimes sees a nice specimen plant in a window where the temperature of the room is not too high, and the atmosphere consequently not as dry as where a high temperature prevails. Carnations like a moist atmosphere and a moderate temperature. A temperature of 45° at night and 60° in the day time suits them admirably. Red Spider is the bane of the Carnation amongst insect pests, and is generally the cause of failure with these sweet-scented favorites. Syringing the foliage, or dipping the growth of the plant in a pail of water on fine sunny days is the best preventive or remedy for these almost imperceptible but destructive enemies to successful carnation culture, both in the window and greenhouse.

When the growth of carnations begin to assume an unnatural, whitish appearance, you may be pretty well assured that these pests have started out on their work of

FIG. 2537. CARNATION.

destruction. Commence at once with the syringing and dipping process at least two or three times a week. Carnation plants like to be kept moist at the roots, but do not like to be soddened with water all the time. Too much water at the roots often injures them and produces an unhealthy appearance of the growth. By examining the underneath side of the leaves closely, it can soon be ascertained if the spider has commenced its work, or if the plant has been getting too much water at the roots, making it look sickly.

To propagate Carnations, pull off a few of the young shoots that are produced about half way up the flower stem and stick them in around the pot the plant is growing in. They will often root more readily here than in sand. Remember to pull the short growth off, and not use the knife to it at all. The shoots mentioned for propagating are usually called "pipings," to distinguish them from ordinary cuttings. In three or four weeks they will have taken root and be ready to pot off into small pots.

Fuchsias.—Plants of these that have been resting during winter should soon be started into growth. Prune the tips of the young wood of last year's growth back a little, so as to make a nice, shapely plant. Give the plants more water than they have had whilst resting, and place them in a warmer position. As soon as the small leaves begin to appear, shake the plants out fairly well from the soil they are in, removing, as a rule, about half of the soil. Repot into the same sized pot into soil composed of two parts of rich, light loam and one part each of sand and leaf soil, well mixed together. Give the plants plenty of drainage at the bottom of the pots ; broken pots are best for this purpose. Water the plants well once at the roots, then withhold water until the soil begins to show signs of dryness. Syringe the top growth of the plants daily. This will help the plants to break into growth strongly, and also keep down red spider, the latter being the worst insect pest the fuchsia has, as is often seen by the plant dropping its leaves, sometimes before it commences to produce its beautiful drooping clusters of flowers. Syringe fuchsias often and thoroughly, wetting every leaf, especially the underneath side.

Cellar Plants.—Oleanders, Hydrangeas, Lemon-scented Verbenas, etc., that are often wintered successfully in basements and cellars, should be looked over occasionally to see if they are in good condition. Possibly some may require a little water, as the soil around these dormant plants must not be allowed to become dust dry. If the plants are already showing signs of growth from having been kept in a too moist or warm place, it is best to bring them at once into partial light and repot them if necessary. Plants that have once started into growth and are then put back into a dark place and allowed to dry again at the roots, are injured materially, if not killed, by the latter treatment. Better to introduce them gradually into full light and sunshine in the window and grow them on, than attempt to check them again after they have once started into growth. This second return to a dormant state generally proves fatal to almost all plant growth.

Early Seed Sowing.—Seeds of Petunias, Verbenas, Alyssum and Lobelia may be sown in pots in the window about the end of the month or early in March, so as to secure large plants for window boxes or hanging baskets. Later sowings may be made for planting in the beds or borders. Golden Feather (*Pyrethrum*), so useful as an edging plant, should be sown early, as it is very slow growing.

Giving Air to Plants.—With the increasing heat of the sun, window plants will be benefitted by being given a little fresh air. This must, however be very carefully done, so that the outside air does not strike

directly on the plants, unless the weather is more balmy and spring like than is usual in February or early March. By opening an outside window or door in an adjoining hall or room on a fine and moderately warm, sunny day for only a few minutes perhaps, enough pure air will be admitted to be of great benefit to the plants. This can be done every day if the weather permits. Or the top sash of the window may perhaps be lowered an inch or two, to allow a current of fresh air to pass over the plants without striking directly on them. Never give air from the bottom of the window, even on sunny days, unless the temperature outside in the shade is about 50°. Even then a strong breeze directly on the plants may injure the most tender ones unless great care is exercised.

Insect Pests.—These will be sure to increase rapidly as the heat of the sun increases. Tobacco smoke or tobacco water, and constant syringing and sprinkling the plants with cold water once or twice a week on fine sunny days, are the best preventatives and remedies for insect pests, more especially the aphis or green fly, the most common spring and summer pest to plant life.

Protecting Window Plants.— Lifting the plants down into a warm corner of the room, away from the direct current of air from under the door, will often save a collection of plants from freezing on extra cold nights. A sheet or two of newspaper will also give extra protection if placed around and over them. Newspapers or sheets of brown paper placed between the window and the plant so that the edges of the papers overlap each other as well as the edge of the window, is a great security to window plants, in addition to a thick, close window blind. Late winter and early spring is when window plants are in the greatest danger from frost, as the warmer days induces carelessness in regard to fires, the result often being the ruin of a fine collection of plants after a winter's previous close care and attention.

Black Spot on Roses.

Sir,—I am greatly troubled with black spot on my roses, H. P's. It appears soon after the bloom is over and defoliates the canes entirely before the summer is past, thus injuring the new growth. What remedy do you advise? A. B. O.

Bad drainage at the roots, or too much animal manure applied to the soil, or too much water will induce the disease known as "black spot" or "rose leaf spot." If the soil is of a clayey nature, try a good dressing of wood ashes in the spring. Spread the ashes over the soil so as to pretty well cover it, then fork the ashes just under the surface of the soil. Fungicides that will check the black spot are often as dangerous to the plant as the disease itself. The disease seldom does much injury where the soil is well drained and proper fertilizers used. About one-third bone meal may be added to the ashes mentioned if a fertilizer is needed. Picking off the diseased leaves as soon as they appear is also a preventive of the disease spreading.

Carnations.

Sir,—Would Mr. Hunt be so kind as to tell me why so many seedling carnations of the Marguerite, Dwarf Vienna and other varieties fail to produce flowers? They grow large tufts of leaves but no flowers. It is so common with me that he must have observed it. The habit of growth of these flowerless plants is quite different from those which bloom. A. B. O.

I should advise trying a fresh strain of seed of the Marguerite Carnation. These carnations are very susceptible to hybridization, and it often happens that many of the plants partake more of the remontant or perpetual flowering kinds, the latter taking a much longer time than the Marguerites to produce their flowers from seedling plants.

Geraniums.

Sir,—Can the soil be too rich for geraniums? My beds are made very rich. Whatever the cause the result has been that the plants produce no flowers, and the leaves drop off and all are more

or less affected with a round spot as if stung by the blister beetle. A. B. O.

An excessively rich soil is not good for geraniums as it induces a soft sappy growth and few flowers. Take out a portion of the top soil of the bed, and substitute some light loamy soil that has not been enriched, mix the two soils well together when forking the bed over. Planting the same varieties year after year will sometimes account for plants not flowering. If this is the case, plant some other varieties.

LARGE FLOWERED MOCK ORANGE

A WELL-KNOWN shrub that is almost indispensable in any collection, is the Mock Orange or Sweet Syringa. In 1899 we showed our readers a spray from a bush at Maplehurst, which we reproduce. The large flowered variety is so superior to the common one grown in Canadian gardens, that when this plant first came into bloom it seemed almost a new species, it is so much larger and more showy. Dr. Saunders wrote of this variety in one of his reports as follows: "There are several species belonging to this genus which are beautiful and interesting when in bloom. Grandiflora is one of the best of them. The flowers are large, pure white and sweet scented, and are produced in great abundance during the month of June. The bush is a vigorous grower, and if not interfered with will, under favorable conditions, reach the height of eight or ten feet. Since the flowers are produced only on the wood of the previous year, this may be cut away when the flowering period is over, which will give more room to the new shoots and they will become better ripened. In this way these shrubs may be kept smaller and made to produce flowers in greater protusion. The syringas will, however, do very well without any pruning beyond the occasional removal of dead wood and flower freely. The large flowered species is fairly hardy and usually comes through the winter without much injury, especialiy when partially protected by hardy trees and shrubs, but in seasons of unusual severity the shoots are often partly winter killed.

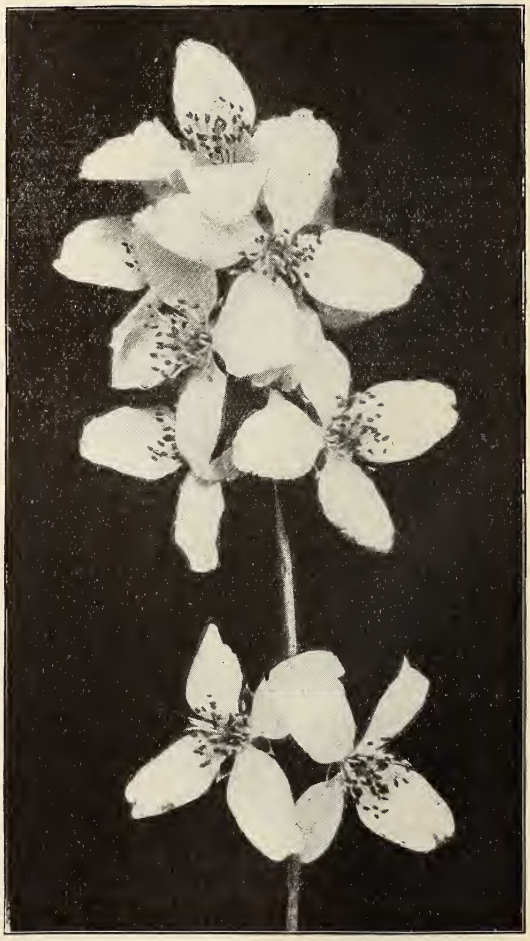

FIG. 2538. SYRINGA.

SPIREA VAN HOUTTEI

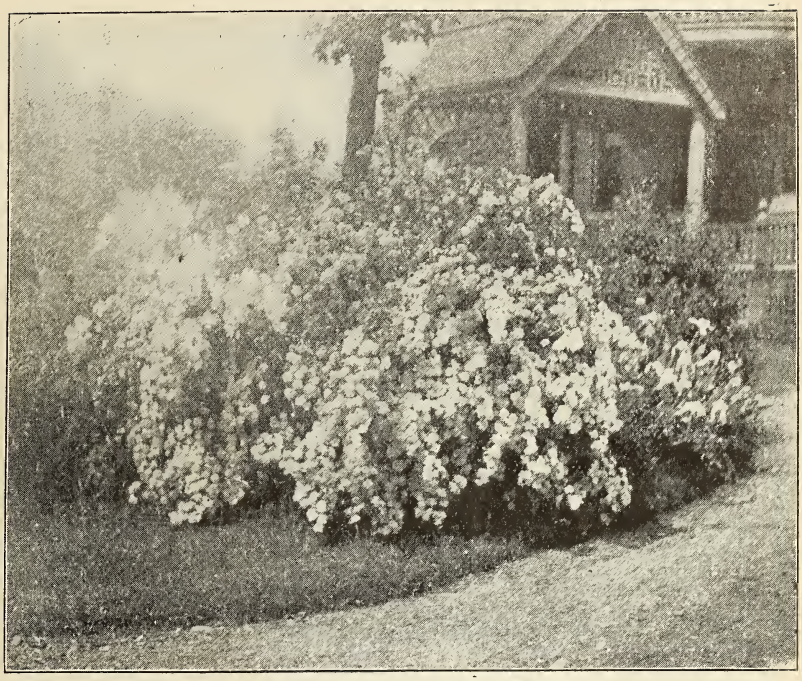

FIG. 2539. SPIREA VAN HOUTTEI.

OUR engraving shows a bush of Spirea van Houttei in full bloom at Maplehurst, early in the month of June. Of the large and attractive group of Spireas, some species of which are found natives of nearly every country and climate, no one is more beautiful than this, for it is a wonderfully free bloomer, and its charming white flowers make it a splendid bush to plant along with other shrubs, such as Weigelia, Syringa, Tartarian Honeysuckle or Purple Fringe. It is quite hardy in Southwestern Ontario, and does fairly well even as far north as Ottawa. The bush grows to a height of about six feet. It is one of our premium plants this spring.

HOUSE PLANTS IN WINTER

PALMS ARE AMONG THE MOST BEAUTIFUL AND SATISFACTORY.

THERE are many beautiful plants that with intelligent care can be made to thrive and do well in winter.

Among the most beautiful and satisfactory are palms. They are very strong and hardy, and with the observation of a few simple rules can be kept green and vigorous all winter. More palms are killed by overheating than by cold. They should have a temperature of between 50 and 60 degrees. If it is not convenient to have any room in the house kept as cool as this, stand them in the corner furthest from the radiator, as close as possible to the light, but not in the glaring sun. The worst enemy of plants is dust. Owing to its smooth leaves, the palm can be readily kept free from this. Its leaves should be washed with a soft sponge and luke warm water.

As to watering, the great danger is that

the housewife will be too generous in this respect. It is difficult to give a definite rule. Generally speaking, the earth in the pot should be kept moist, not wet. If the room is kept at high temperature, the plant will require more water than in a cool place. But winter should be a time of rest for the plant, and therefore nourishment and water should be given sparingly.

Neither a palm, nor any other plant, should ever be put in a glazed pot. If an ornamental pot is desired the earthen pot should be set inside. A porous pot absorbs and evaporates the moisture, while in a glazed pot the earth grows sour and unfit for even very hardy plants. There should be a hole in the bottom of the pot, over which a stone, a bit of broken crockery, or something similar should be laid. A few lumps of common charcoal at the bottom of the pot will prevent the roots from rotting, and powdered charcoal mixed with the earth has the same effect. The chunks localize the effect, keeping the bottom from turning sour.

Having temperature and moisture right, the next enemy of the plant is parasites, such as fungi and insects. Many little insect pests affect the palm. Some of these are destroyed by washing the leaves with a sponge or a soft brush, using clean water only. Those that cannot be destroyed in this way, such as scales, can be quickly despatched by tobacco juice diluted with water. Any tobacco or cigar manufacturer will give you all the ribs of tobacco leaves you want. Put a handful of these in a quart of water and boil. Wash the leaves with this, and if you put in a little whale oil soap it will be all the more effective.

As to fertilizers, none should be used in winter, as it stimulates the plant into an unhealthy activity at a period when it should be resting. If the palm begins to droop and the normal bright green turns into a sickly yellow it is probably because it has been kept too wet, or if the plant has been in the the pot two or three years the soil in which it grew has probably been exhausted. In this case repotting is the only effective remedy. Care should be taken, however, not to transfer to too large a pot. Most people think that the larger the pot the better for the plant. But this is a great mistake. If the pot is too large the plant has more moisture and nourishment than it can absorb, and the roots will rot. A pot an inch and a half larger in diameter than the old one will afford ample room. The second year a portion of the earth in the top of the pot, where it is free from roots, can be removed and fresh put in, but the plant should not go more than two years without repotting.

These rules for palms apply equally to all winter plants. You must adapt your plants to the condition of your rooms. Tell the florist what kind of heat and exposure you have, and he can tell what kind of plants will probably do best in your rooms. Some of the hardiest and most satisfactory varieties of palms are the Kentia, Latania, Areca, Cocus, Corypha, Chamaerops, Dracaena, and Pandanus.

The cactus has been sadly neglected as a house plant. There is no plant that responds more gratefully to a little kindness and intelligent care. Its odd shape will fully compensate for the little trouble the plant causes. Frost and too much moisture are fatal to the cactus family.

The greenhouse favorites, violets, roses and carnations, cannot be grown at home. While the rose will sometimes develop the buds upon it when purchased, it can rarely be induced to blossom again. The azalea, too, which when purchased, is loaded so thickly with blossoms, if kept a year with all care at home, will perhaps put out two or three straggling flowers. But there are plenty of fine house plants that are too little known.—*The Mail and Empire.*

THE CANTERBURY BELL

(CAMPANULA MEDIUM.)

BY

JAS. M. HALL,

HAMILTON.

THE genus Campanula is a very important one, and contains some three hundred species, some of which are annual, some biennial and some perennial.

The Canterbury Bell (C. medium) is a great favorite with me, and I have pleasure in sending you photograph of a bush in my garden, and also of a few of the single flowers. These show how appropriate the name Campanula is, for it is a Latin word for "little bell." I think no garden is complete without this species. It is a hardy biennial, and since it does not bloom until the second year after planting, it is necessary to sow seeds every year in order to keep up an annual display of flowers. This plant grows up the second year in pyramidal form, and has many large bell-shaped flowers in beautiful shades of dark purple, mauve, blue, pink and white; they are also striped as blue and white, mauve and white, etc.

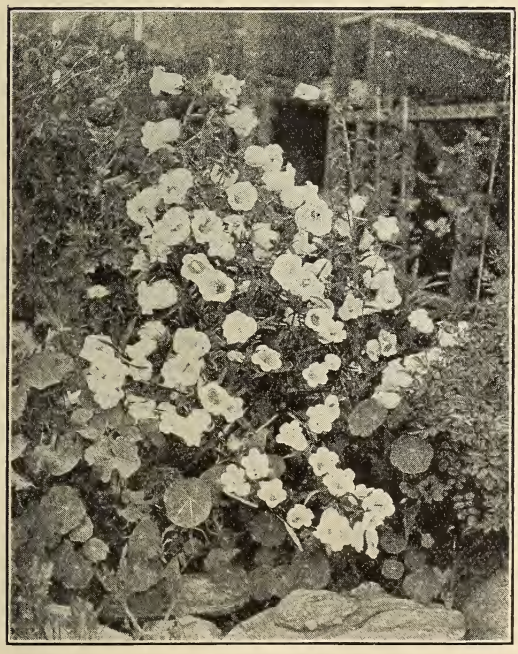

FIG. 2540. CAMPANULA MEDIUM (C. BELLS). GROWN BY MR. HALL, SUMMER OF 1902.

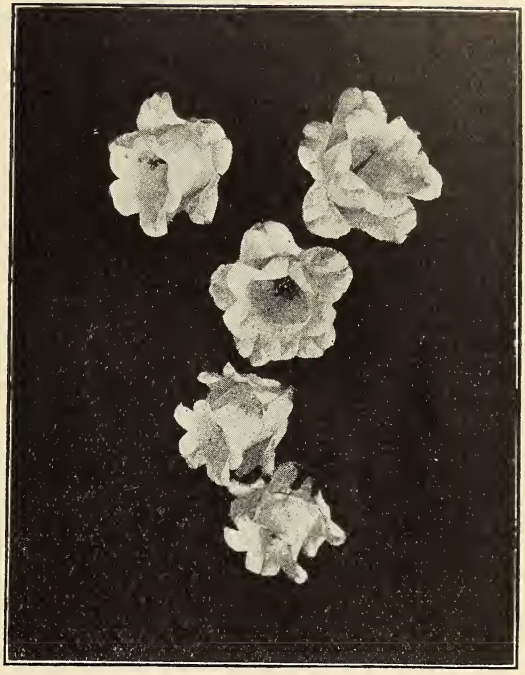

FIG. 2541. CANTERBURY BELLS.

A lovely variety of this Campanula is the one known as "Cup and Saucer," the white waxy appearance of which is beyond description.

The Companulas succeed best in a very rich, well drained soil, and they should not be too much exposed to the sun. The plants should be protected in winter with leaves and coarse litter or straw.

They are fine for cut flowers, and the cutting encourages their continuous bloom; indeed if the seed vessels are removed a second crop of flowers may be had the same season.

THE CARE OF PLANTS IN THE WINDOW

IN winter, as at no other time, we appreciate the flowers in the window. They seem to suddenly take on a charm and beauty we have not seen in them before, and we feel that home would not be what it ought to be without them. And this is as it ought to be. Flowers should be considered one of the necessary things of life.

A window full of flowers in winter is as good as a course of lectures to him who keeps his eyes and heart open. They are all the time preaching little, silent, eloquent, sermon to us. They concentrate our attention on a bit of summer brightness, and we feel that if a fragment of the great whole can afford so much pleasure, we have but feebly appreciated the wealth of beauty and brightness God gives to us yearly.

Make friends with your plants. Don't be content with simply knowing their names and just as little about their requirements as will enable you to keep them alive. Be on intimate terms with them. That is the only way to enjoy them.

In order to grow plants well in the house they must have plenty of light. Unless this can be given they will be spindling and weak, and there will be few if any flowers, and these will be inferior.

The best exposure is a southern one ; the next best an eastern one. A south window is the one in which to grow Geraniums, Lantanas, Heliotropes, and all plants fond of much sunshine, while the eastern one is better for Begonias, Fuchsias, and such plants as care more for the sun in the early part of the day, that they do after its rays become more intense. A west window gives too much heat unless shaded considerably, but is better than no window at all, and if you have no other to give your plants, don't go without them. A curtain of thin muslin will temper the heat greatly, and vines can be trained over the glass in such a way as to break the fierceness of the sun's rays. A north window is not suited to the needs of flowering plants, but some which are grown solely for foliage can be kept there. Ferns, Palms, Aspidistra, Ficus, and Lycopodiums, will do quite as well there as in a window exposed to the sun. English Ivy can be trained about it. Tradescantia in baskets can be hung up in it, and thus it can be made beautiful without flowers if you have a love for " green things growing."

One often sees weak, scraggly plants in the sitting room windows. They seem to have grown too rapidly to be healthy. Two things combine to bring this about ; lack of fresh air and too much heat.

If you want fine plants, you must give them plenty of air. They breathe, as you do, and without fresh air taey pine and become diseased, the some as you would under similar conditions. Always have your window arranged in such a manner that it can be lowered at the top, thus letting a stream of pure air blow in over the plants. Opening doors from the hall, or some adjoining room into which air can be admitted from without, will let in a supply which your plants will fully appreciate. Never let a stream of cold air blow directly on them, however. Aim to have the cold air mix with the warm air of the room befors it reaches them.

The air of the living-room is generally kept too warm and dry for plants. About seventy degrees during the day time and fifteen degrees less at night would suit such plants as one finds in ordinary collections. Aim to keep the temperature as even as pos-

sible. Too great heat forces a weak growth, and has a tendency to blast any buds that may form.

In a room where the air is warm and dry the red spider will do deadly work. In order to keep him at bay the plants must be given as much moisture as possible. Keep a vessel of water on the stove, to evaporate. Shower the plants daily. If the pots are used without saucers, the table on which they stand, or the shelves, can be covered with an inch of sand which can be kept in place by tacking cleats along the edge of the stand. The sand will take up and retain the water which runs through the pots, and thus a steady moisture will be given off from it, for there will be constant evaporation taking place. Keep the air of the room in which the plants are kept as moist as possible, if you want to grow strong, healthy plants.

Showering daily helps to keep the foliage clean, and unless the dust, which settles on the plants when sweeping the room, is cleared away, the pores of the leaves become clogged and the plant finds it difficult to breath, for the pores of the leaves are really the lungs of the plant.

In a moist atmosphere many plants can be grown which would die in a dry air, and all plants do so much better where there is plenty of moisture in suspension that the amateur who wants his plants to do their best will aim to supply it. It has often been observed that fine plants are frequently found growing in the kitchen, while those in the parlor are sickly. The explanation of this is : The kitchen air is moist because of the cooking, washing and other work of that kind going on there, while the parlor air has all the moisture extracted from it by intense stove and furnace heat which there is no moisture to modify.

Stir the soil in the pots at least once a week. An old fork is a good tool to do this with. This allows the air to penetrate to the roots, and keeps weeds from getting a start. Keep all dead leaves picked off and remove fading flowers. It is a good plan to cover your plants with a thin sheet, or a newspaper, when sweeping. Another good plan is to remove them to the kitchen at least once in two weeks, and give them a thorough washing. This helps to keep down insects and prevents them from becoming incrusted with dust.

Provide yourself with one of the brass syringes or elastic plant sprinklers for sale by dealers in florists' goods. With one of these you can throw a strong stream or a spray of water over and among your plants, and apply it effectively, which you cannot do if you depend on a wisk-broom for a sprinkler. A "sprinkler" is not what you need, but something that has force enough to take the water in all directions and in such quantities with such volume as the case may require.

Turn your plants at least twice a week so that they will get the sun and light on all sides. This prevents their becoming drawn to one side, as they will be sure to do if not turned frequently. Do not neglect to do this if you want good-shaped specimens. Be sure to give all the light possible ; don't shut it out from the window by curtains. Let your plants furnish the beauty for the window. Some are afraid of letting in the sunshine upon their plants because it wil fade the carpet. If you care more for your carpet than you do for your flowers, give them to someone who is willing to do the fair thing by them, and concentrate your energies on the protection of the precious carpet, but don't attempt to compromise matters between the two, for this will result in failure so far as the plants are concerned.—*Exchange.*

THE LOCUST TREE.

AT Maplehurst we have a dozen fine old locust trees, the kind botanically known as Robinia Pseudacacia. They were planted over one hundred years ago by the first member of our family who purchased the old homestead, and they are such rapid growers that now they rival maples and elms of two or three times their age in the wood lot. They are interesting trees, and have some merit for ornament with their racemes of pea-like flowers in early spring and their delicately pinnate leaves. They grow to a lofty height and are not so dense in foliage as to hide distant views; yet as lawn trees they are not very popular, because they are inclined to sucker, they are late in foliage, and they make considerable litter both of flowers and leaves and broken boughs.

But as an investment, the growing of locust trees for fence posts on sandy soil would no doubt be a paying one, and we quote from the Vermont Experiment Station Bulletin a valuable extract on this subject:—

"Every farmer in New England ought to produce posts for his own use at least if not to sell. There are three common trees especially suited for posts—the Red Cedar (juniper), the White Cedar (arbor vitæ), and the common Locust (black or yellow locust). The last will make the quickest growth, is easily started, and best adapted to otherwise worthless soils. Good locust posts will usually be standing long after the man who sets them is gone.

"Believing that the growing of locusts on a fairly large scale for sale as posts ought to prove profitable, the Vermont Experiment station has recently been investigating the question and started some experimental plantations. Preliminary plantings of some nine varieties of trees have been made at intervals since 1897. The outcome is especially favorable in the case of the white pines and the locusts, and a considerable larger plantation of each of these was made in 1902. This trial is being made on the dryest area of the level sand plain east of Burlington. Pitch pine is the only tree that makes a vigorous natural growth here, although the white pine succeeds fairly well when planted. The locust far outstrips all others, however. Of several thousand seedlings set last spring, when less than a foot high, ninety-two per cent. are now alive and three feet or more in height with leafy branching tops. Seedling trees near by in exactly similar soil have a trunk diameter of five inches and a height of sixteen feet at eleven years of age; others nineteen years old, growing in equally sandy but moister soil are averaging nine inches in diameter at the base, and a clean shaft of twenty-four or more feet, which is sufficient for three fence posts and some fire wood besides. Twenty years from seed will give a crop fit for posts on this last soil, and the coppice growth, following the cutting of the first crop, will ensure a second crop in even less time. The seedling trees cost only $3.50 per thousand, and can probably be raised at a less expense. Allowing 1000 such trees per acre yielding three posts each once in twenty years, a handsome return is assured. The serious danger and source of uncertainty in locust culture is the borer. Fortunately its worst attacks are confined to the young trees, and if these survive then the danger is soon outgrown. It is said that the use of heavier foliaged trees for one-third the plantation in mixtures with the locusts, will reduce this danger from borers. White pine is considered the best tree for this purpose in sandy soil. The reason for the especial success of the locust on barren soil is that as a member of the pea family it secures its nitrogen indirectly from the air. It thus gains its own supply of this element, and at the same time enriches the soil where it grows. This latter result is shown by the fact that grass around locust trees may appear even greener and more luxuriant than in the open field."

The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

Notes from the Horticultural Societies

LINDSAY.

The officers for the year were duly elected at the annual meeting. The secretary's report showed receipts of $274.03, and an expenditure of $213.39, leaving a balance on hand of $60.64. During the year they put in circulation 94 copies of horticultural literature and 2500 bulbs; also 300 plants of different kinds were distributed among the members. This society is doing a good work, and more should help by becoming members.

PARIS.

The Directors beg leave to present their Fourth Annual Report for the year ending 31st December, 1902.

Our membership for the past year was 79, being an increase of 15 over the previous year.

In spite of very vigorous attempts made to arrange an excursion to the Ontario Agriculture College at Guelph, we were unable to succeed, the excuse being given that such excursions could only be permitted to farmers' institutes. As a result we begin the new year's business with a balance on hand of only $10.76 instead of $57.47.

Our usual Flower Show was held on August 8th and 9th, and was an even greater success than in previous years in point of attendance and exhibits. The receipts at the door being $14.56 and total expenses $37.74.

In this regard we think it advisable for the Society to consider whether the Flower Show sheuld be open to all or to members only, and whether admission fees should not in future be charged.

Nature study is a branch of modern education which is now receiving a good deal of attention, and in pursuance of that idea, your Directors at an expenditure of about $15 took in charge the grounds of South Ward School, planted them with various Canadian shrubs and trees, had them all properly labelled, and handed them over to the Board of Education to remain for all time an object lesson to the young, and an incentive to our School Boards and Town Council to continue in the work of civic improvement.

While we will not have as much money to spend

in the coming year, we hope our successors will take some further steps to improve either the school grounds or the public parks and streets. Such a Society as this should take the lead in such work, and by its example encourage those outside the roll of our membership to beautify their own residences as well as the streets and parks of what is said to be the prettiest town in Ontario.

A large distribution of trees, plants, flowers and bulbs was made to our members at a cost of $100.44, and on the whole satisfaction was expressed with the premiums. As a result of our efforts many new plants and flowers have been introduced into the homes and lawns of our town.

Your Directors wish to point out that although the objects of a Horticultural Society are to encourage a love of nature in regard to one branch of the vast number of subjects which come under the head "Nature Study," and which includes that which is most beautiful and good, and which has a more elevating and enobling tendency than perhaps any other phase of natural science, yet, among in list of members we can find only one school teacher and only one clergyman, and a retired one at that, out of over a dozen teachers in town and a half dozen clergymen. Do we think too much of our Society or do they fail to appreciate a good thing when they see it?

Mr. Geo. Champion of Toronto, very kindly acted as judge at our Flower Show and delivered a very interesting and instructive address on the faults and mistakes in potting plants.

All of which is respectfully submitted,

(Sgd) JOHN ALLEN,
President.

Paris, Jan. 14th, 1902.

LONDON.

A very satisfactory annual meeting was held on Wednesday evening, Jan. 14th, the Rev. Dr. Bethune, President of the Society in the chair. The Officers an Board of Directors were unanimously re-elected. The financial statement showed a balance in hand of $60.16. After an address by the President, in which he reviewed the work of the past year and suggested new matters that might be taken up during the coming season, the report of the Directors was read as follows:

The Directors of the London Horticultural Society beg to present their third annual report.

During the year 1902 they have held nine meetings for the transaction of the business of the Society, in addition to the annual meeting on the 8th of January.

Two lecturers, commissioned by the Provincial Association, addressed the pupils of the public schools on the 14th March, and in the evening a public meeting in the Collegiate Institute. The attendance at the latter was very satisfactory, and much interest in the subjects discussed was shown by the audience.

On the 25th of April a paper was read by request before the London Teachers' Association by Mr. Cammage, and addresses were delivered by Messrs. Fox and Balkwill on Horticultural Subjects. On June 15th the President addressed the Sunday School at the Chalmers' Presbyterian Church on the occasion of a distribution of flowers and plants to the pupils.

Three very successful flower shows were held during the summer months in the City Hall, which was kindly placed at the disposal of the Society by the Mayor and City Council.

The first show was held on the 7th and 8th of May, when a very fine exhibit was made of tulips, narcissus and other spring flowers. Mrs. Labatt kindly contributed an orange tree in fruit and several other specimen plants, and Mrs. Macfie a large number of cut flowers.

The second show was held on the 24th, 25th and 26th of June, the time being extended to a third day in consequence of the very wet weather which prevalled and greatly reduced the attendance. The exhibit, however, notwithstanding the cold, wet season, was very fine, the display of roses being especially striking. About forty of our members contributed flowers of many varieties, and to them is due the success of the exhibition.

The mid-summer show, the third of the season, took place on the 6th and 7th of August. and was considered to be the most beautiful and the richest exhibition which the Society has yet given. This was largely due to the magnificent display of hybrid gladiolus of the "Pan-American" strain contributed by Mr. H. H. Groff, of Simcoe, the master hybridist and famous grower of these magnificent flowers He sent about a thousand spikes displaying every variety of color yet produced and great perfection of shape and size. Many of our members also exhibited Gladioli, which it would be difficult to surpass anywhere. Among these may be mentioned the grand array sent by Mr. Paine, and very fine collections by Mr. W. E. Saunders, Mr. C. J. Fox, Messrs. Gammage and Sons, Mr. E. J. Liddicoatt, W. Gilbert and others; of other flowers then in perfection a splendid display was made by a large number of our members, the excellence and variety of which was most creditable to the exhibitors, and a cause of delight and wonder to the large number of visitors.

A collective display of autumn flowers was made by the members of the Society at the annual exhibition of the Western Fair during the week beginning Sept. 15th. This was not in competition for any prize, but was intended to show the public, and especially visitors from a distance, what could be done in the way of flower production at that late period of the year. The blooms were numerous and very tastefully arranged, and attracted great attention from the throng of visitors to the Horticultural Hall. The society was awarded a diploma by the directors of the Fair in recognition of the excellence of the display.

The directors again offered three prizes at the Western Fair for the best collection of cut flowers exhibited by members of the Society. This brought out a better competition than last year, and prizes were awarded to Mrs. Morgan and Mr. Wm. Moore.

During the year the members of the society received as premiums, in addition to the plant from the Fruit Growers Association, a bulb of Lilium speciosum and seeds of Dolichos and Salpiglossis in the spring, and in the autumn half a dozen Hyacinth bulbs. Mr. Gammage, with great generosity, also presented each member with four named varieties ot Chrysanthemums in pots.

An invitation was sent to all our members to at-

tend the 39th annual meeting of the Entomological Society of Ontario, which was held here on the 29th and 30th of October. A fair number availed themselves of the opportunity of hearing the interesting and instructive addresses at the public meeting in the Normal School building.

The Directors have much pleasure in recording their high appreciation of the public spirit and generosity of Mr. Adam Beck, Mayor of the City, in offering $100 for prizes in a garden competition. A very large number of entries were made and the results were very pleasing not only in the care and improvement of the premises of those competing, but also in the effect upon their neighbors who were influenced by the examples thus set and did much to keep their own grounds in good order.

The Directors feel that they may justly congratulate the Society on the good work it has accomplished in the City of London, during the three years of its existance. Testimony is borne on every hand to the noticeable improvement to be seen in all directions in the care of lawns and boulevards, and the cultivation of flowers and shrubs. We should all be encouraged by this success to do everything that lies in our power to promote a taste for beauty amongst our citizens of every grade, and to lead them to vie with one another in making the surroundings of their residences and places of work and business as attractive as possible.

All of which is respectively submitted,

R. W. RENNIE, Sec'y-Treas. C. J. BETHUNE, President.

HAMILTON.

The annual meeting of the Hamilton Horticultural Society was held in the Museum of the Public Library, Jan. 14th, 1903, at 7.30 p.m.

The Secretary-Treasurer reported a balance on hand of about $204 00. The Society began the year well, three open meetings having been held. In November an address by Mrs. Iza Gilchrist; in December, "Best Flowering Shrubs," by Mr. Roderick Campbell, of Niagara Falls, illustrated by numerous specimens of decorative winter plants; in January an address by Mr. J. O. McCulloch on "Popular Garden Flowers," illustrated by some seventy-five lantern slides made during the past summer.

Mr. A. Alexander, who has been President of this Society since its inception, has resigned the position and Mr. J. O. McCulloch has been elected in his place

J. M. DICKSON, Secretary-Treasurer.

OTTAWA.

Ten years ago yesterday the Ottawa Horticultural Society was organized in the City Hall with a membership of about twenty-five. The annual meeting held last night showed how it had grown and become prosperous in these ten years, for the membership last year numbered 239, while the receipts were $743.

Mr. R. B. Whyte, who has been President of the Society for the past three years, made a short statement of the work done during the past year and how the Society had progressed. He gave a comparative statement of how in the past three years the interest had grown as follows:

	1850	1901	1902
Receipts	$649	$671	$723
Disbursements	$562	$594	$654
Number of Entries	772	735	725
Attendance	720	829	1023
Number of Members	186	213	239

Mr. Whyte thanked the members for the honor they had done him in electing him to fill the position of President for three years, and assured the new President of his hearty support.

Mr. W. T. Macoun, in a short address, voiced the feelings of the members towards Mr. Whyte, whose untiring efforts during the past three yesrs has made the Ottawa Society second to none in Canada.

It was decided to branch out and educate the school children of the city to take a greater interest in flowers, and to hold a show in 1904 at which school children should exhibit plants grown from bulbs given by the Society. It was decided also to hold a General Bulb Show open to members in this month.

WOODSTOCK.

The Horticultural Society met last night in the Council Chamber with a fair attendance. G. R. Pattullo presided. The President's and Secretary's reports were read, both showing a very satisfactory condition of affairs. Their former report showed a balance on hand of $115.15. Their total receipts were $364.61, made up of a balance from last year of $116.28 receipts from the Legislative grant, subscriptions, flower show, etc. The disbursements amounted to $249.46 in all. Among the items of expenditure were the cost of the flower show and distribution of plants to the public school children. The sum The sum of $61.38 was expended in the latter worthy cause, which was found to be a most successful experiment.

Mr. Pattullo, who has held the office of President for the past two years, on retiring from that office in favor of R W. Woodroofe, in recognition of his valuable services to the Society was unanimously elected Honorary President.

Mr. Pattullo, in addition to the suggestions made in his presidential address, outlined a scheme for a "surburban drive." He thought by systematic improvement upon some of the outlying streets, such as Vansittart avenue, planting of trees, draining, grading and other improvements, that gradually this desirable object might be gained.

Several members reminded the President of the large outlay such a course would entail.

Mr. Pattullo replied that the money could be raised between the property owners and the Council. Of course it would take some time to provide a suitable scheme. He wished merely to mention the matter as a suggestion.

Mr. Woodroofe deplored the present condition of Vansittart Avenue and Victoria Parks. They had been kept in a disgraceful condition last year. He proposed that a committee be appointed to in-

terview the Council regarding this matter. The matter will be dealt with by the new board.

Secretary J. S. Scarff gave the members some of his observations at the recent meeting of the Ontario Fruit Growers' Association at Walkerton. The meeting had been one of the most important ever held and Mr. Scarff was again appointed a member of the board.

The following was the President's annual address:

At the close of another year in the history of our Society it is satisfactory to report that some progress has been made. The work of this and kindred societies is usually done by comparatively few of the members who have a special love for it. Under these circumstances progress is generally slow, but in our own Society in recent years there is apparent an increasing and more general interest.

The Annual Flower Show of the year was on a larger scale, the exhibits were more numerous, the market sheds were better suited therefore and they lent themselves more easily to tasteful decoration with arrangement of the several exhibits. These features, together with excellent music provided, made the Flower Show the most successful, both in point of merit and attendance, and also to the afforded pleasure to visitors, that the Society has yet held.

The plan of holding cottage or garden meetings, begun the previous year, was continued during the summer. Two very pleasant, interesting and helpful meetings of the Society were thus held at the homes of T. H. Parker and William Grey, Esquires, two of the earliest and most prominent of Woodstock's horticulturists. At the latter, Mr. Grey contributed some interesting reminiscences of pioneer horticulture and horticulturists here. The Society are also indebted for a very pleasant afternoon spent at the greenhouses and surroundings of Doyle & Son's, where they saw a large, varied and fine bloom of chrysanthemums, geraniums and other annuals.

BEAUTIFYING OF SCHOOL GROUNDS.

ADDRESS BEFORE THE WOODSTOCK HORTICULTURAL SOCIETY BY MR. G. R. PATTULLO, PRESIDENT.

The Society has enjoyed the privilege also of hearing several valuable papers contributed by members during the year, notably those of our lady friends, Mrs. Finkle, Mrs. Hoare and Mrs. Davidson. The Secretary as District Representative in the Provincial Society is still a useful link between the latter and the local Society, and our influence was further extended by a paper recently read by the president before the County Teacher's Convention upon the subject of Beautifying School Grounds:

"But perhaps the most important work done by the Society during the year was the plant and flower distribution among the children of the public schools—from seventy-five to a hundred children of all ages received free from the Society some common varieties, such as asters, zinnias, phlox, petunias and geraniums, to be planted and cared for by themselves. The result was most satisfactory. The children interested themselves in the care of the plants, and there was thereby an increase of about a hundred well kept and tastefully arranged little flower pots in the city during the summer. Quite a number of bouquets therefrom, neatly arranged, were presented at the Autumn Flower Show, and in the reports made thereon by the children, clamor vigorously for more plants next year.

"It will be seen from the above that the Society have some reason for congratulation upon the work being done by and through its instrumentality. It has done something, but much more remains to be done. The awarding of prizes for cottage and flower gardens and well-kept grounds, and of prizes to the school children for flower and vegetable plots, the plant and flower distribution among the children of the public schools, the promotion of tree, shrub and flower planting upon our school and other public grounds, the holding of cottage and garden meetings of the Society, which are pleasant and practical object lessons to those who attend, the reading of timely and useful papers upon subjects of practical interest, the hearing of lectures by experts from the Provincial Society—all of these things, which the Society has done during the past two years. are useful and educative; they have awakened a wilder interest in the subject of fruit growing, floriculture and kindred topics in our community, but a large field still remains for our attention, occupation and active operation.

"The citizens of Woodstock frequently boast—and not without cause—that they have a beautiful city. Nature has done much for if, and the hand of man something. But, though a beautiful little city, it is not yet the city beautiful. To make it so should be the aim of our Society and all its members. Much remains to be done. The streets are not yet all tree lined, nor have they all well-kept boulevards. There are not yet enough parks for the convenience and pleasure of our people and their children, and those that we have are inadequately, indeed badly cared for. Our church and hospital grounds are not yet fully equipped with trees, shrubs, climbers and flowers. Only two of our school grounds have been improved in the same direction, and our cemeteries are still capable of improvement and beautfying. Then I should like to see a suburban avenue, which when graded, drained and tree-lined would afford a delightful drive or wheel all about our beautifully and picturesquely located little city. This should be begun at once. It need not necessarily be an expensive undertaking. Existing streets could be utilized, and I am satisfied that the active interests of citizens who reside in the outlying districts of the city, could be enlisted in a project, the completion of which would improve their properties and provide for them and for their children much pleasure. I venture to commend these matters to the favorable attention of my successor and his colleagues in office, and for whom I solicit an even more kindly and general support than has been extended to me as president.

"It is gratifying to learn from the Treasurer's report that although our expenditures have been rather more generous than usual, the balance on hand is still the same as last year."

WALKERTON.

The Directors of the Walkerton Horticultural Society, in presenting their first annual report to the members of the Society since the affiliation of the Society with the Ontario Fruit Growers' Association, congratulated the Society on its prosperity during the year 1902 and that the Society had affiliated with the Fruit Growers' Association.

Bearing in mind the objects of the Society, your Directors made arrangements early in the year for and held a meeting in the Town Hall, Walkerton, on Thursday evening, March 13th last. This meeting, the first of its kind in town, was a perfect success. The Walkerton Orchestra provided good music. The speakers of the evening were Mr. T. H. Race, of Mitchell, and Mr. L. Woolverton, of Grimsby. The former gave a delightful and inspiring address on the influence of flowers upan the life and character of children, and the latter upon the subject of landscape art as applied to home and school grounds.

On the first of August last the Society held a Flower and Plant Show or exhibition in the Town Hall. No prizes were offered. There was a large and fine exhibit of flowers and plants, and those who attended were highly pleased with the entertainment and expressed the hope that the Society would make the exhibition an annual event. School children were admitted free. Each member of the Society received free three admission tickets. There was taken at the door $4.70. After the close of the exhibition all the cut flowers, with the consent of the exhibitors, were expressed to the Sick Children's Hospital in Toronto, where they were thankfully received. We hope that the directors of 1903 will hold another exhibition during the coming summer, if the season at all proves favorable, and that it be held later in the season than last year's. Every member of the Society, as well as every lover of flowers, should make arrangements early in the season so as to be prepared to be an exhibitor, and we hope every one will assist in making the exhibition of 1903 a most enjoyable success.

During the year 1902 this Society had eighty-nine members who each paid $1.00, and as required by sub-section (a) of section 11 of the "Agricultural and Arts Act" of Ontario, we hereto annex the names of the members. We feel confident that if the objects and benefits of the Society become better known in the community the membership of the Society will greatly increase. Each of the members for the year 1902 received monthly a magazine, "The Canadian Horticulturist," and as a premium with that magazine each member received one of the following plants under its plant distribution for 1902, viz:

(a) Plant called Iceberg, a new white blackberry.
(b) Flowering shrub, Deutzia Lemoinei.
(c) Grape vine, Campbell.
(d) Hardy flowering schrub, Siberian Pea Tree.

The magazine was read with pleasure and profit by the members.

Your directors also purchased from Mr. Sherrington, of the Experimental Fruit Farm at Walkerton, and from Mr. W. E. Norrish, at Walkerton, a quantity of fruit trees, shrubs, vines, plants and bulbs, and last spring distributed them among the members, viz: 13 palms, 144 tuberous rooted begonias, 6 caladiums, 12 spotted leaf callas, 12 cyclamen, 36 tigridias, 9 cannas, 84 gladiola, 56 roses, 30 Japanese lilies, 8 clematis, 8 Madeira vines, 8 cinnamon vines, 15 cherry, 42 plum and 6 apple trees, 6 currant bushes, 5 dew berries and 60 black and red raspberries. During the fall of 1902 your directors distributed among the members a quantity of flowering bulbs, viz: 150 hyacinths for pot culture, 300 bedding hyacinths, 1500 tulips, 600 crocus, 300 narcissus, 25 Chinese sacred lilies.

The Ontario Fruit Growers Association favored our town and society by holding its annual meeting here on the 1st, 2nd and 3rd December last, and the executive committee of that Association recognizing the fact that the Horticultural Societies of Ontario had been a great assistance to the Fruit Growers' Association held two special sessions for those interested in flowers, etc. Those who attended these meetings received a large amount of pleasure and benefit from them. The papers read and addresses given were all by gentlemen of culture and experience, and as a stenographer was present to report the proceedings and addresses the members of our Society will receive the benefit of them in the coming publication of the Annual Report of the Fruit Growers' Association. Every member for 1903 will receive a copy of that report.

Your Directors through Mr. Norrish purchased a number of plants and bunting to decorate the hall. The plants were sold at a small loss after the meeting, and the bunting remains on hand for future use for exhibition purposes. The thanks of this Society are due to Messrs. Dale, of Brampton, who gratuitously supplied all the beautiful and welcome roses, which made such an elegant display on the table in the room where the Horticultural meetings were held.

During the one of your directors, Mr. D. MacGillvray, Manager of the Canadian Bank of Commerce here, was moved to a similar position in Windsor, Ont. Your Directors and the Society have suffered material loss by the removal of Mr. MacGillivray who took an active part in the organization of this Society, and spent time and money in making the flower show of 1902 a success, and also in planting trees on our streets. As he is a budding botanist and found of flowers and plants, he encouraged others in the cultivation of their gardens, and was a good example to them as well as to those fond of civic improvement. He was of great service to us.

We would recommend that the Directors of 1903 take early steps to induce the Town Council, Board of Trade and Trustees of the High, Public and Separate Schools to act jointly with the Directors in the matter of planting and taking care of our street shade trees, and induce the Department of Militia and Defence to remove the old and delapitated board fence at the old drill shed ground, and level and seed the ground. The grounds are near all the schools in town as well as to the county public buildings and churches, and in their peesent state are an eyesore to every citizen as well distroying the beauty of the adjacent public buildings and private residences.

Your Directors would also recommend that the

Town Council declare one-half of Arbor Day or another earlier day if suitable according to the season as a public holiday for the purpose of enabling the members of this Society and citizens generally to plant shade trees and flowering shrubs on our streets and public park known as the Bend and principally on the three streets around the old drill shed grounds (providing the authorities remove the fence and otherwise improve the appearance of the grounds) and generally to promote out-door art and public beauty.

We would also recommend that the Directors offer prizes for outside window box gardening and hanging baskets during the coming season.

OUR BOOK TABLE.

"MILLIONS OF TREES" is the title on the front cover of a very attractive catalogue issued by our advertiser, D. Hill, the veteran grower of evergreens at Dundee, Ill. Mr. Hill has been "at it" for more than forty years, and is known not only all over this land, but in many foreign countries. He is a native of old England, where forestry is more intelligently understood than here. He grows all his stock from seed and develops them into thrifty, hardy trees. Those who deal with him once do so again and again as need arises. Write for his catalogue and mention Canadian Horticulturist when you do.

CATALOGUES— CACTI AND SUCCULENTS, I. H. Cullander, Canadian Cacti Specialist, Woodstock, Ont.

REPORTS.

FAIRS AND EXHIBITIONS, 1902, Ontario Dept. of Agriculture. FARMESR' INSTITUTES, 1901. Part II Women's Institutes. TRIAL PLOTS OF GRAIN, FODDER CROPS, etc. Dr. Saunders, Central Experimental Farm, Ottawa, 1902.

PRICES CURRENT.

AGRICULTURAL CHEMICALS AND FERTILIZERS.—The market continues firm and steady, with an upward tendency. Southern business is picking up, and prices are well maintained. Nitrates of soda remain strong and sulphates of ammonia are a little stiffer.

AMMONIATES.

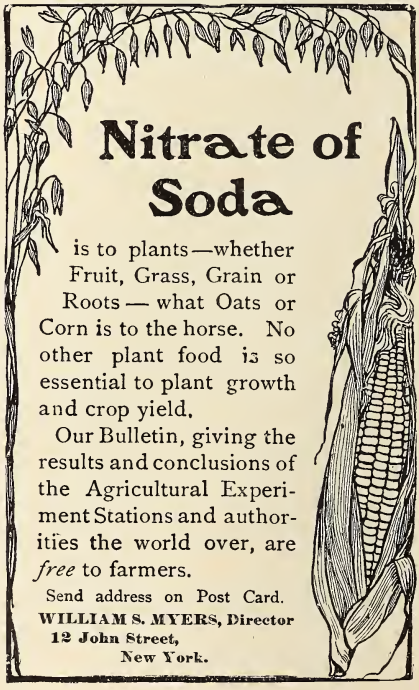
Nitrate of Soda, spot, per 100 lbs..	$ 2.05 a $2.10
Nitrate of soda, futures, " ..	2.00 a .....
Cottonseed meal, p. ton, c.i.f. N.Y.	27.00 a 28.00
Sulph. ammonia, spot	2.05 a 2.07½
Sulph. ammonia, shipment	2.05 a 2.07½
Dried blood, N. York, low grades,	2.45 a 2.47½
Dried blood, Western, high grade, fine ground	2.57½a 2 60
Fish Scrap, at New York	2.55 and 10c.
Tankage, per unit	2.57 a 2.65 and 10c.

PHOSPHATES.

Acid phosphate, per unit	55 a 60
Bone black, spot, per ton	16 00 a 16.00
Ground bone, per ton	21.00 a 23.00
S. C. phosphate rock, ground, per 2,000 lbs	5.00 a 5.50
S.C. phosphate rock, undried, f.o.b. Ashley River, 2,400 lbs	3 00 a 3.25
do do dried	3.25 a 3.50
Florida, high grade phosphate rock, f.o.b. Fernandina, per ton	6.50 a 7.00
Florida land pebble phosphate rock, f o.b. Fernandina, per ton	4.00 a 4.50
Tennessee phosphate, f. o. b. Mt. Pleasant, domestic	3.25 a 3.50
do do foreign	3.75 a 4.00

POTASH.

Kainit, future shipment, per ton..	9.05 a . . .
Keiseret, future shipment, per ton.	7.35 a 7.50
Mur. potash, 80 p.c., future shipment	1.80 a .....
Double manure salt (48 a 49 p. c. less than 2½ p. c. chlorine), shipment, per lb	1 09 a .. .. Basis 48 p. c.
High grade manure salt (90 a 93 p. c. sulphate potash), shipment...	2 08 a ..... Basis 90 p. c.
Manure salt, in bulk, 20 p. c. per unit, O. P	62 a 64


Nitrate of Soda
is to plants—whether Fruit, Grass, Grain or Roots — what Oats or Corn is to the horse. No other plant food is so essential to plant growth and crop yield.
Our Bulletin, giving the results and conclusions of the Agricultural Experiment Stations and authorities the world over, are *free* to farmers.
Send address on Post Card.
WILLIAM S. MYERS, Director
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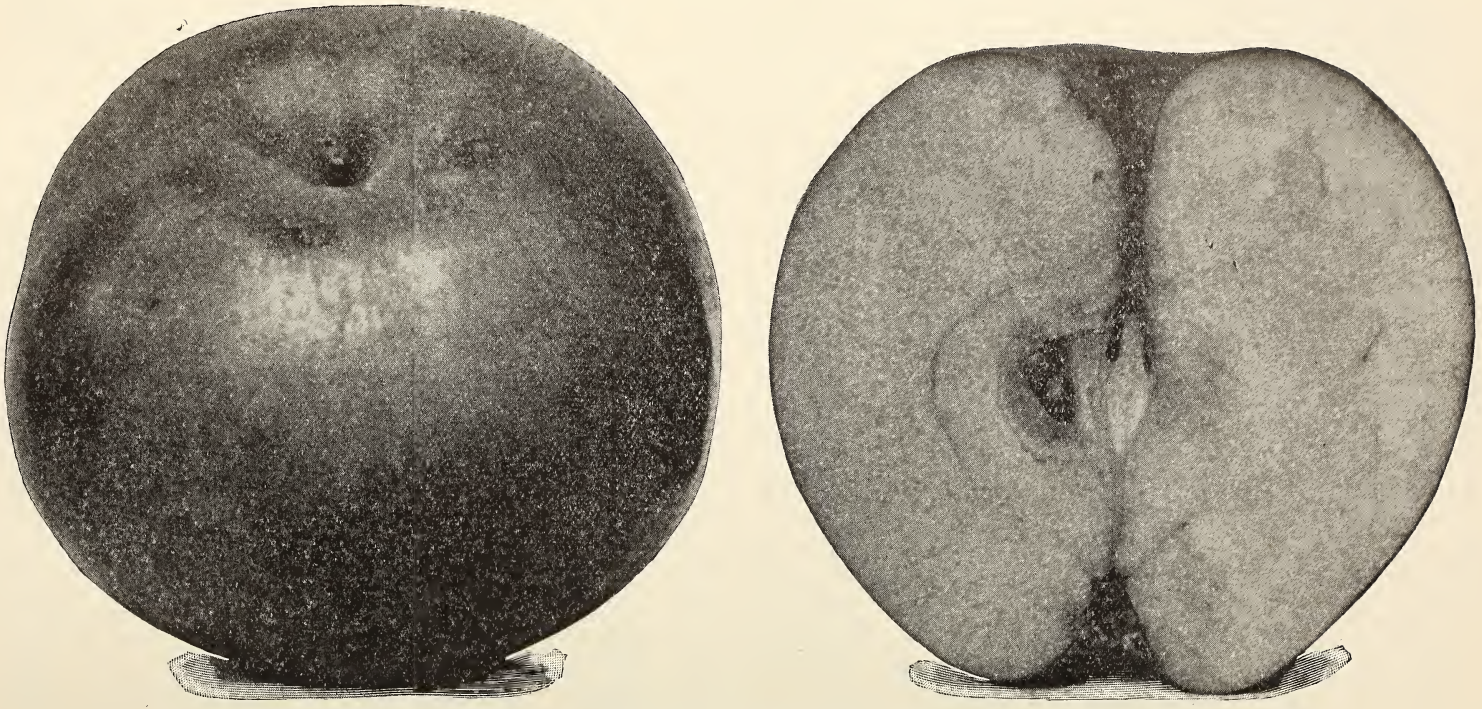


FIG. 2542. HUBBARDSTON.

THE
CANADIAN HORTICULTURIST

MARCH, 1903

VOLUME XXVI NUMBER 3

HUBBARDSTON

(HUBBARDSTON NONSUCH.)

ON the model prize list which has been issued by the Canadian Association of Fairs, in their first annual report, we note the name of the Hubbardston, a variety of apple which is less known and less cultivated in Ontario than its merits deserve. It is really one of our best early winter apples, being higher colored than King and more productive than Ribston.

In those sections where it has been found to succeed, this apple should rank high for planting in the commercial orchard; but we hear so little about it at our meetings, and so seldom see it at our fairs, that we conclude it has not been tried in many parts of our province. Some years ago we received some samples from a subscriber at Beamsville, which were very fine and beautifully colored, and the grower said he counted them among his most valuable market apples. Mr. A. A. Wright, M. P., of Renfrew, speaks most highly of the apple for a retail trade, and says that it is the favorite variety called for by his customers.

The Hubbardston originated in Hubbardston, Mass., whence of course it takes its name.

ADAPTATION.

E. MORRIS, Fonthill :—The "Hubbardston" apple is not grown extensively in this section, just a few odd trees. The apple as grown here is a very productive one and of good quality, but ripes a little too early for profitable shipping.

A. E. SHERRINGTON, Walkerton :—The Hubbardston does well here with Mr. Shaw. The tree is a vigorous grower and an annual bearer, and the fruit does not spot. I think it would be profitable.

A. M. SMITH, St. Catharines :—Hubbardston Nonsuch is not much grown in this section, but among our packers is highly esteemed. Titterington & Co. say it is one of the best of the late fall for market. I have never fruited it myself. Some have confounded it with the Blenheim Pippin, which it somewhat resembles, but is smaller in size and a little better keeper, being classed by Downing as an early winter.

Notes and Comments

AN APPLE TOWN.

IF there is any town in Ontario deserving the name of "Apple Town," we think it is Brighton, for not only are there apple orchards all about it, but also all through it. The visitor must note that every garden, and almost every door yard is an orchard; the people make their living out of apple growing; they eat apples, they sell apples, they talk apples. Nothing is of any importance, unless it is associated with apples. You hear every group of men discussing the rise and fall of the apple market; the number of barrels stored in Brighton, the number stored in Ontario, in Quebec, in Maine, in Ohio, in New York; and the time to ship to strike the best market.

We were told on good authority that the apple crop in the village of Brighton itself—within the corporation—in the year 1896 was over 10.000 barrels! Think of that, you villages with waste back yards, and profitless gardens.

Oh you say, the conditions are different.

True, but they can be made the same. Get some one with capital to put up an apple house, if you are in an apple growing district, and very soon you will have similar conditions.

THE APPLE HOUSES.

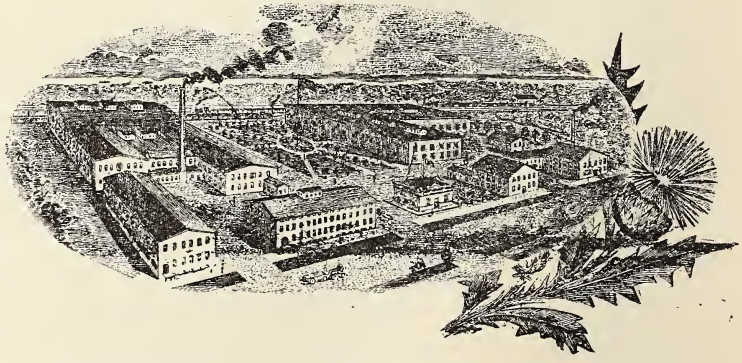
The flourishing condition of the villages of Brighton and Colborne is largely due to the apple houses. These give employment to hundreds of men; they afford frost proof shelter for the crops of the twenty acre orchard, of the quarter acre garden, and the single tree; they bring buyers and shippers together after the rush of the apple harvest is over.

There are four large apple houses at Brighton viz:

Sam. Nesbitt's,	capacity	50,000 bls.
Butler's.....	"	14,000 bls.
Wade's.....	"	10,000 bls.
Webb's.....	"	10,000 bls.
	Total,	104,000 lbs.

There are three storage floors, inclusive of the cellar, and the buildings are made frost-proof by insulated walls. No ice is used for cooling, but the doors and windows are opened in cold weather sufficiently to keep the temperature down as nearly as possible to the freezing point. Indeed, they claim that apples are perfectly safe from freezing with the thermometer standing at 32 F. Unfortunately, however, it went below that degree last winter in some of the houses, and many stored apples were badly frozen, and, in consequence, are being hurried forward.

The apples are picked from the trees into the barrels, but not sorted or packed; they are headed and brought into the storage house to be emptied and packed during the winter, thus affording winter work for the men, and giving time for proper packing and marketing.



Canning Factory. Apple Houses. Can Shop. Office. Evaporator.

FIG. 2543. NESBITT'S APPLE HOUSES.

These apple houses are paying investments for capital, and should pay a high percentage on the investment in apple growing districts. At Brighton and Colborne the charge for storage is six cents a barrel for the season, with the use of a packing room, and this for a house holding 10,000 barrels would yield an annual rental of $600. The storage houses are made use of by buyers operating at distant parts, who ship to these houses and bring their gangs of packers to put them up in winter, the Grand Trunk charging eleven cents a barrel on the through bill of lading for the stop-over at Brighton.

THE PACKING ROOMS.

OF COURSE men must be comfortable for their work, and excellent packing rooms are afforded by closing off about ten feet of space along the whole length of one side of the building on each floor, with numerous windows, and with packing tables along the wall. These long rooms are made comfortable with stoves, and the barrels brought in for packing and taken out for storage through slide doors in the partition here and there, and afford ample space for all the gangs of packers.

BARRELS VS. BOXES.

NO boxes are used for apples at Brighton, the only package being the standard apple barrel.

"In 1895," said Mr. Dudley, of the firm of J. G. Dudley & Co., "I gave the box package a thorough trial to my great loss. I put up 12,000 bushel boxes, at considerable cost for wrapping paper and work of packing. I shipped them to Liverpool, and when I came to compare my account sales with those of my neighbors, who shipped in barrels, I found I had lost about $1800; so I have no confidence in the box package."

Probably his conclusion is correct with respect to the auction market, for the broker and his auctioneer have no patience with the box; but the retailer and consumer appreciate them, and would pay well for them if we could but reach them.

PRIVATE SALES BEST.

WE must not ship our fancy boxed apples on consignment; they must be sold by private sale on their merits. Now that the hurry of disposal is done away by cold storage why should high grade apple stock in boxes be shipped on consignment any more than any other food product?

"You are correct in that," said A. McD. Allan, of Goderich, whom we met at Trenton, "and there is an unlimited opening for private sale of high grade stock. For example, last summer I sold one thousand forty pound boxes of Canadian apples at eight shillings to go to Leith. All that is needed to lead to an unlimited sale of Canadian apples f. o. b. in the orchard, at splendid prices, is to establish *confidence in the grade.* There is still much to be desired in this particular. I have been disgusted during my stay in Great Britain with the incorrect naming of Ontario apples, which much depreciates the selling value; besides, I think, there is yet much to be done by our Government Inspectors. Too much faulty stock goes forward as No. 1, that should be classed No. 2; and the inspectors should be more strict in their inspection, and not allow such grading to pass."

"The trade at home (England)," said Mr. Eben James, of Toronto, "want a large package in a large season, and we have to use the barrel to get the crop cheaply marketed. In the private sale business the box may be all right, but I assure you very often a private sale man will turn down a lot on the least provocation, and you have to get a broker to sell them on their merits; this has been my experience in the past ten years, including four years before I became Woodall's agent. Then again, if you take the cream of the fruit and put it in boxes,

the barrels are not going to average very much. Besides other food products are largely shipped on consignment to brokers, such as cheese, butter, and eggs to a certain extent."

HOW LONG TO STORE APPLES.

THE question when to ship for best prices seems very unsettled, and probably varies every year. The Brighton apple men are now rushing forward all their stock in order to finish shipping by April 1st. They say that this continent has such an unusual quantity of apples in storage that the price cannot advance.

Mr. Allan gave his opinion that our apples should not reach England later than April, else they will meet the early fruits of Spain, and the Tasmanian apples. On the other hand we notice that Woodall's reports of Baldwin sales always reach the top notch in spring time. So we are still at sea, and cannot conclude this question.

APPLES PAY.

NOBODY about Brighton thinks of digging out his apple trees. They pay too well. One packer at Brighton took about 2,000 barrels off his nineteen acres and sold them for $4,900. They were Phœnix and Baldwin. "I can beat that record," said Oscar Chatterson, of Brighton, "In 1896 I took 1,088 barrels of apples off four acres, but I did not get much for them that year."

"In 1898," said Mr. F. C. Morrow, "I was saved from disaster by a car of Mann apples. I had met poor sales and two carloads of my apples had been frozen at Montreal, though they were inside a refrigerator car, so that I was utterly discouraged. On the 17th of March I forwarded a car of Mann apples to Liverpool and got a net return of $4.40 per barrel! and for a carload of Spys I got $3.00 f. o. b. to go to Montreal."

PLAIN BRANDING.

"IT is a great mistake," said Mr. Allan, "to use rubber stamps or indistinct pencil marks for the name of the variety; this is too important to be done carelessly; it should be made plain and distinct so that it would not be easily erased, and could be easily read."

We noticed that the Brighton people do this well. They use nicely cut stencils for all marks, and printer's ink as a marking fluid. They thin it with coal oil, and apply it with a brush, neatly and quickly.

THE TRENTON STORAGE.

MR. EBEN JAMES, who represents Woodall & Co., Liverpool, has perhaps the best situated apple house in Ontario, because at Trenton there are both Grand Trunk and Pacific lines in competition, and the Central Ontario R. R. to bring stock from the interior; while all about the Bay of Quinte, calling at least at twenty docks plys the Steamer Verona, gathering the apples of the farmers and landing them directly upon the commodious wharf of the Trenton Storage House. There are no wharfage, or cartage charges. The building is of stone, 94 x 124 feet and the cost about $40,000; when completed it will be four stories high, and afford accommodation for about 50,000 barrels of apples. Refrigerator machinery will be put in next season, so that apples can be held at any desired temperature from "start to finish;" and for convenience of handling there will be barrel lifters, hoists and carriers, so that unloading from the cars, or loading upon the cars or upon the steamers for Montreal can be done at the least expense. The Richelieu line of steamers will call two or three days a week, and there are besides two daily boats.

The cost to the grower who chooses to store his apples, will be: 1st, the additional charge on the through bill of lading by the Railway Company of 11 cents a barrel, 10 cents a barrel for the cold air storage, or 25 cents a barrel for refrigeration, a total of from 21 to 36 cents a barrel. To this must be added the extra cost of repacking,

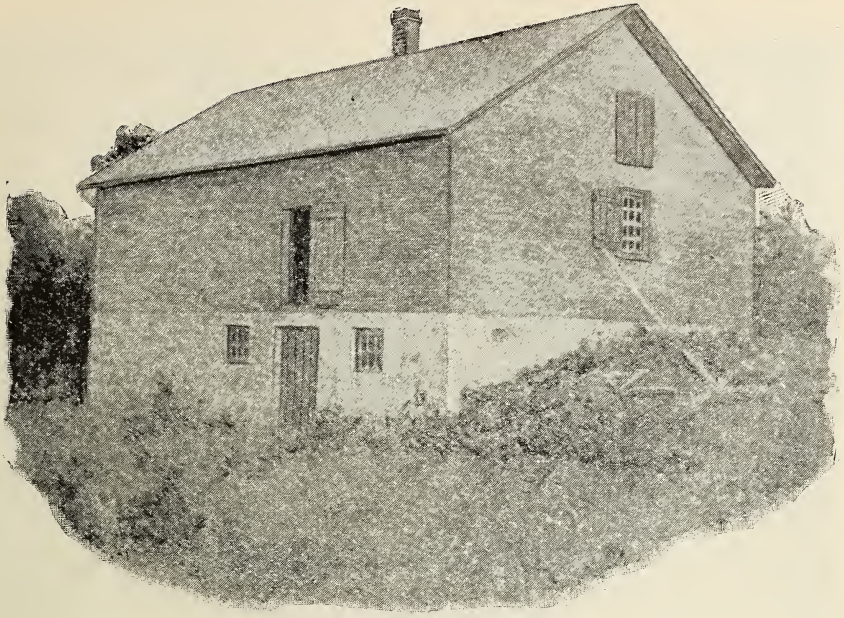


FIG. 2544. W. H. DEMPSEY'S FRUIT HOUSE.

for the apples for storage are picked directly into the barrels and all need repacking, which is worth about 15 cents a barrel; or a total added cost to the price in the orchard of at least 41 cents a barrel. It is therefore evident that when a farmer is offered $1.00 a barrel for his apples on the trees, the buyer to pick them, he is receiving a fair price; for the picking is worth 10 cents a barrel, the barrel 35 cents, so that he is receiving an equivalent of $1.00 + 41 + 10 + 35c, or $1.86 net for his apples, stored and packed; or, if not stored, since he would still have the 15 cents cost of packing, $1.00 + 10 + 35, or $1.60 a barrel net, a price which he might not realize if he shipped on consignment, unless the market rules high.

The president of the Trenton Apple Storage Co. is Mr. Harry Pedwell, an experienced capitalist, and the managing director is Mr. Eben James, of Toronto.

TEMPERATURE FOR KEEPING APPLES.

IT has been much debated at what temperature apples will keep best, some claiming that 40 ° is low enough, but actual tests show that the nearer they can be kept to the freezing point in safety, the longer they will keep without change. "I try," said Mr. Eben James, "to keep the temperature in my storage between 30° and 32°, and I find that the apples in barrels will stand that without injury, and that scab will not develop on the apples held at such a low temperature."

Mr. James has the packing done in this temperature also. He objects to packing rooms such as used at Brighton and Colborne, which are heated by stoves, because apples brought from 32° to 60° or 70° will at once become wet from the condensed vapor, and these sudden changes injure them.

OUR APPLE STATION.

IT WAS well planned when we selected Mr. W. H. Dempsey as our experimenter in apples, a large apple grower in this great apple district. He has about fifty acres in apple trees himself, and his principal varieties are as follows:

Ben Davis	600 trees.
Spy	500 "
Snow	400 "
Baldwin	200 "
Greening	200 "
King	65 "
Ontario	50 "

besides an endless list of smaller lots.

FIG. 2545. A VIEW IN W. H. DEMPSEY'S BEN DAVIS ORCHARD.

Mr. Dempsey has had great satisfaction with Ontario. It comes into bearing so early, the fruit is so even in grade, and it will sell for Spy on the markets, it resembles that variety so closely in appearance, but it is inferior to it in quality.

"I have exported the Duchess," said Mr. Dempsey, "in barrels this season in ordinary storage, but did not meet with much encouragement; they only netted about three cents a barrel more than I got for those I sold in Montreal, and that was too small a margin for the increased risk."

THE BEN DAVIS.

"NOW, Mr. Dempsey, what do you think of Ben Davis; you have more of them in your commercial orchard than any other kind?"

"It always pays me well," said he, "but it has its own season in the market, and that is toward spring, after the Baldwin and Spy have been well cleared out. Nobody wants to eat a Ben Davis in fall or early winter; it is not ready so early. My own family use more Ben Davis than Baldwin, because in Baldwin season they prefer to use Spy; but when these are over, say in April, then they call for Ben Davis, and by that time it is good for all purposes."

Mr. L K. Shourds, of Wellington, Prince Edward County also championed the Ben Davis. "Why," he said, "in March, 1900, Pritchard, of Liverpool, authorized me to buy for him, and pay $2.75 for Ben Davis, and only from $2.25 to $2.50 for other varieties. At that season the old Ben turned out in better and more salable condition than Baldwin or Spy."

"In Ottawa, only last week (about the middle of February)," said Alex. McNeill, of Ottawa, one of our fruit inspectors, "I saw Ben Davis sold at $2.50 a barrel, when good Snow apples were only bringing $2.00!"

So it appears that old Ben still has his friends.

BEN DAVIS FOR STOCK.

"I HAVE great confidence in Ben Davis for top grafting upon," said Mr. Shourds. "A Spy tree is apt to split at the crotch, but Ben Davis is tough and does not break down; besides Spy, top grafted on Ben Davis, bears fairly early. I have an instance where I top grafted Spy on the branches of a Ben Davis at three years after planting, and at seven years it began fruiting. I am planting twenty acres to Ben Davis trees, and if I want Spy I will have first-class stock upon which to top graft it."

PHOENIX.

THIS apple is grown to a considerable extent in Northumberland County, and some growers value it highly. Mr. Solomon, of Brighton, who was packing at Butler's storage, said he found it quite as productive as Baldwin, as good a shipper and seller; but Mr. C. W. Crandall, of Colborne, thought it inferior to Baldwin, and all owned it was not as good a keeper, and should be shipped before January or it would discolor. The samples given us on January 20th however, were still bright in color and in excellent condition.

SIZE OF BOXES FOR FRUIT.

WE are frequently asked to give the proper size for the apple and pear box for Ontario; but really the question is not very easy of answer, so many have been the changes. We believe, however, that the apple box adopted for 1903 by our meeting at Walkerton is the most desirable in size, and the one most likely to become the standard for Ontario, and we hope for Canada. This box is 9 inches deep, 12 inches wide, and 18 inches long, inside measurement.

It is practically the California pear box, with capacity for forty pounds of pears. Now in the British market the 40 pound or quarter barrel apple boxes are most in demand, and if we use a larger one, we ship at a loss. This box is suitable for both pears and apples; but for tender varieties such as Bartlett, one 5 x 12 x 18 inside would be better, because only taking two layers of fruit; it would have a capacity of about twenty-five pounds.

FOR CHEERIES, we use the nine pound grape basket, but some have tried the California pear box with success. It measures inside, length 16½ inches, width 10⅜ inches, depth 2½ inches. This box takes two layers of cherries, the one layer so placed against the top that no stems show when opened. The capacity is ten pounds.

FOR PEACHES, the California people use a similar box to the pear box described above, but depth inside about 4½ inches; and capacity twenty-two pounds.

MEASUREMENTS OF APPLE BOX. — Mr. George E. Fisher, of Burlington, who was a member of our committee on boxes at Walkerton, has been figuring out the contents of our proposed box, and says that although in number of cubic inches it is a little too large to be equal ¼ of our apple barrel, yet in actual trial, owing to packing material and number of spaces about the sides, it is about as near correct as possible, and Burlington growers are adopting the size recommended above. He figures it out thus:

"A standard barrels contains 96 quarts or 6655 inches; $9 \times 12 \times 18 = 1944$ inches; $6655 \div 1944 = 3.423$ or 3 2/5 boxes to barrel; ¼ of $6655 = 1664$ or ¼ barrel; $18 \times 12 = 216$; $1664 \div 216 = 7.7$ inches or less than 8 inches depth. Therefore $18 \times 12 \times 7.7 = 1664$ or ¼ barrel by measure. Four boxes $18 \times 12 \times 8$ does not fill a barrel because of the greater number of large spaces about the sides of the box. The size of the required box cannot be determined by figures, but must be ascertained by actual trial. 3 and 2/5 boxes, 9 x 12 x 18 are equal to a barrel in measure, but it does not work out that way, and our boxes are ordered 9 x 12 x 18 as recommended by the Walkerton meeting.

NO CONNECTION WITH NURSERYMEN.

MR. D. S. BURK, of Fergus, asks where he can buy the Gold Plum and the Crosby Gooseberry. He has written to several of our experimenters without satisfaction.

We are glad to have this opportunity of stating publicly that we have no connection with, nor interest in any nursery. If we had, our opinions of varieties might be biased by a desire to boom certain varieties. The work of our association and the aim of this journal and of the report to the Department on fruits tested at our fruit stations, is wholly in the interests of practical fruit growers, and not of nurserymen. We aim to save the fruit growers money by testing all fruits offered for sale, and reporting to them their real value, condemning without stint those that are humbugs.

For the purchase of fruit trees we refer our readers to those nurserymen who advertise in these pages.

LINDLEY AND VERGENNES GRAPES.

MR. E. D. SMITH, of Winona, would qualify the remarks about the Lindley as given on page 51. He would not entirely give up the Lindley grape, for on a somewhat heavy soil it succeeds fairly well planted alternately with some good pollenizer blooming at the same time, such as Concord or Worden.

The Vergennes he considers one of the most valuable varieties. It is very productive, the fruit is of fair quality and one of the very best of shippers. Its only defect is its over-productiveness, hence it must be very severely pruned. Twenty good buds will produce twenty pounds of grapes, which is as much as a vine should be allowed to produce even on the best of land.

THE PLUM MARKET--AN EARLY DESSERT PLUM WOULD SELL.

MR. SMITH also qualifies his remarks on page 52. He would not say that we are planting too many of all varieties of plums, but only of some varieties; nor would he say that it is ever impossible to dispose of the crop at some price, but sometimes we can no longer get the old paying prices.

In addition to the demand for good late plums, Mr. Smith finds a demand for an early plum of real good quality for eating out of hand. Such a plum would pay exceedingly well, especially in the Niagara district, which is the natural home of the plum. Here the trees thrive so well and are so productive that they can be grown at a profit, even if sold at very low prices.

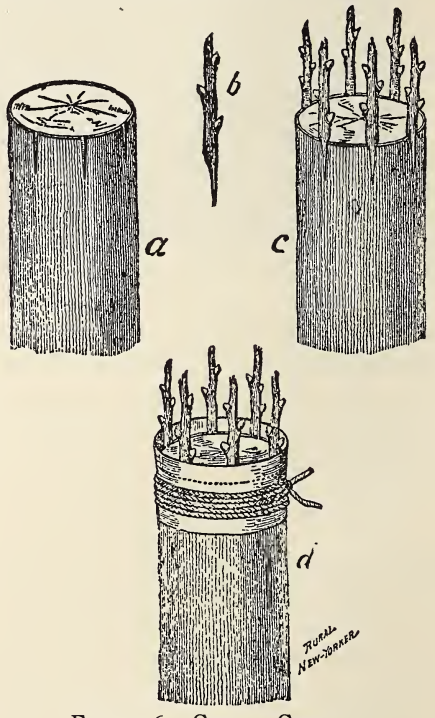


FIG. 2546. CROWN GRAFTING.

CROWN GRAFTING.

MR. A. C. ABBOTT, of Mountain Grove, Ont., writes:

SIR:—As I am now a member of your association I am going to ask you to devote some space to the work of Crown Grafting and Cleft Grafting, especially the Crown Grafting of large limbs on old trees. I am a new member of your society and

am after all the good information I can get upon fruit growing.

We do not recommend Crown Grafting as the best method or renewing old trees, but only as an easy and fairly successful method which any novice may try with fairly good results.

The cuts which we give show clearly how it is done. A fairly large limb is smoothly cut off well back to the trunk (Fig. 2546 *a*), or in some cases an upright trunk is cut off leaving a few limbs below the cut. Cions from bearing trees, of the required variety, are cut in advance and kept in a cool place till required so that they may not push their buds before setting. These cions are cut with a long, smooth, sloping cut from one side only, and pushed down under the bark, which may first be partly raised with a knife. From two to six are set to a cut according to the size of the limb (*b c*). Grafting wax need not be used for this primitive method, provided mud of some clayey texture can be secured. To hold the grafting clay in place wrap the part with a strip of stiff paper about four inches wide, and tie with a string, leaving the edges to project about an inch above the cut. This will form a basin to hold the clay. We have tried this quite often with perfect success.

CLEFT GRAFTING.

FOR a first-class job, however we would much prefer the more scientific method of Cleft grafting. It takes more time because you must work upon the smaller and outer limbs of younger growth, and a great many more cuts must be made to transform a tree to a new variety. Indeed it is usual to do a part of the tree only in a single season, and complete the job the following year, when any failures can be re-grafted. These remarks of course apply to large trees, but in case of small trees the whole top may be cut off at the height desired for the top, and the scion inserted by what is called whip grafting, which is well shown in the accompanying cut from Farm and Home, from which also we take the following details :

The sloping cut or tongue must be fitted in a little more carefully, however, and the juncture wrapped with cloth or covered with grafting wax. If the stocks are of moderate size, a cloth is preferable. This is called whip grafting. For larger trees and for branches, say an inch in diameter and upward, cleft grafting is practised. The branch is cut or sawed off; the lower end of the scion is cut into the form of a wedge with a bud at the beginning of the cut where it rests upon the stalk. This bud hashastens the union the same as a bud down in the earth in root grafting facilitates the growth of roots. The outer edge of the wedge-shaped cuts should be thicker than the inner. The stalk is split on one end by laying a chisel on the cut surface and striking lightly with a mallet. The split is kept open with a knife or chisel until the scion is inserted. Two or three scions may be put in each branch, so if a part of them die some still remain. If all grow, cut off all

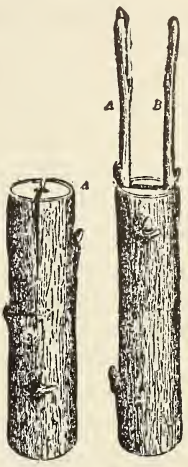


FIG. 2547. CLEFT GRAFTING.

Fig 1, the stock cut horizontal across at A. Fig. 2, the same with two scions, A and B, inserted.

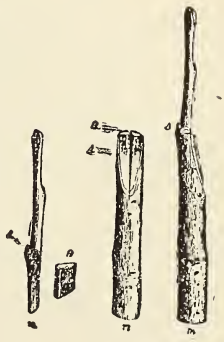


FIG. 2548. SPLICE OR WHIP GRAFTING.

Fig. 1, scion with sloping cut on one side like a wedge; A, bud at the shoulder; B, section showing shape of wedge. Fig. 2, the stock cut and split; A, the sloping cut; B, horizontal cut. Fig. 3, the scion inserted in the stock.

but the strongest one. Coat the surface and the base of the scion with grafting wax or wrap them carefully with grafting cloth. The grafting wax should be just hard enough to be easily worked with the hand. If large surfaces are to be covered, it is well to have it quite liquid so that it can be applied with a brush. It, of course, has to be kept warm during this time. Be sure to have sharp knives, so that clean, smooth cuts can be made. There must be pefect contact between the inner barks of the scion and stock. Every portion of the split and the cut surface of the scion must be covered with wax to keep out rain.

Grafting wax is made by melting together 2 lbs. resin, ¼ lb. beeswax and ¾ lb. of tallow. For whip grafting, it is very convenient to use grafting cloth. Tear muslin into balls like ribbon rolls and place in melted grafting wax until thoroughly saturated. Grafting paper is quite handy and is prepared by spreading the wax while warm over one side of a sheet of paper by means of a brush. When cool, cut into strips and roll.

THE NIAGARA GRAPE

COULD find plenty of admirers in the warmer sections of our province, where it ripens its fruit to perfection. For example, Mr. E. Morris, of Fonthill, writes :

"In reply to your enquiry, I would say the Niagara Grape is the *best* all round white grape grown in this section, and is being used quite extensively for a wine grape, but I do not consider it a first-class grape for that purpose, as it gives the wine a foxy flavor."

GRAFTING CHERRIES AND PLUMS.

THE above directions apply to apples and pears, which may be grafted quite late in the spring. Indeed, we have been successful with apples as late as the first of June, providing we had scions still in dormant condition ; but with cherries and plums more care must be taken, and the work must be done early in March, before the sap begins free circulation. The Prairie Farmer gives the following directions for grafting these fruits :

"Do the work on a warm day, so your wax will be soft. I have top-grafted plums, and the thermometer went down to 40 degrees below zero afterwards, and they did well. Apples and pears can be attended to later ; I have top-grafted apples after the buds had started, and they did well. You can use this kind of a graft just as high or low as you want. In making the cions, see that there is a bud just at the base of the cut. It is claimed by experts that there is more life around the bud, consequently it unites there first. Fig 2549 *d* shows how the cut is made in tree and cion inserted. Fig. 2549 *a*, shows how wound ; *b*, how waxed; and *c*, how wound with some old muslin (white is preferred), over the waxed part, to keep the sun off. It is not necessary to wind as shown in *a* for top-grafting.

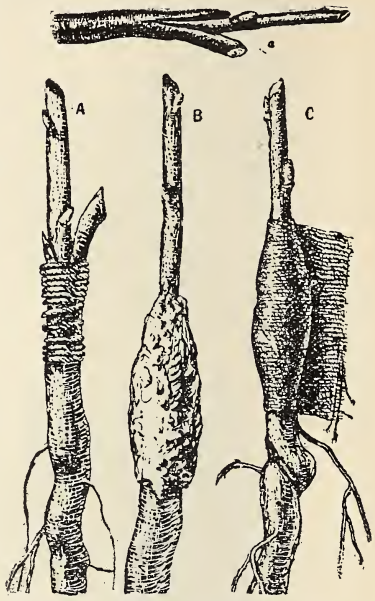


FIG. 2549. GRAFTING THE PLUM AND THE CHERRY

"Recipe for wax : 1 lb. resin, 1 ounce beef tallow, 1 tablespoonful spirits turpentine, 5 or 6 ounces alcohol. Melt resin slowly, take from fire ; add tallow, stirring constantly. When still cooler, stir in the turpentine slowly ; then add alcohol. The object of the alcohol is to thin the wax so it can be used. We do all of our root grafting on cherries, plums and pears this way, excepting the muslin, and use thread in

winding, as shown in Fig. *a*. The top end of the root, where it is cut off, next to the cion, has a ring of bark left on, which is necessary.

FIG. 2550. APPLE TREE PRUNED FOR PLANTING.

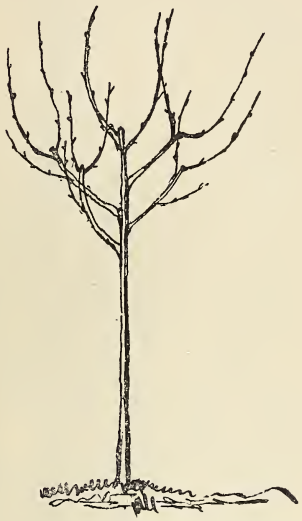


FIG. 2551. APPLE TREE AT END OF FIRST SEASON.

THE SPRING PRUNING.

WE have more than once called attention in these pages to the foolish method of pruning the apple tree, which we see practised by farmers every spring. The lower branches are annually removed, until in time the tree top is almost out of reach, and most unsightly in form.

There should be a complete change of method. The object should be to keep the bearing wood near to the main trunk, and to produce a compact, symmetrical head. The branches that are reaching upward should be topped back, and all should be thinned at the outside. Bearing fruit spurs should be encouraged to grow upon the inside branches, down to the very trunk; and thus a tree will result that is not only beautiful to the eye, but also a filler of the purse.

PRUNING WHEN PLANTING.

A SUBSCRIBER wants to know how to treat young trees during the first few years after planting. The answer depends somewhat upon the kind. A young peach tree, when set, may be pruned to a whip, and the head formed from the buds near its top. Individual preference must decide between a low or a high head, but our own preference is for a low head, so that fruit may be produced almost to the very ground. Ploughs, cultivators and discs are now made to accommodate the fruit grower, so that he can reach under such low headed trees without bringing his horse so near as to injure them; and, if a little extra work is caused in the cultivation, it is made up in the comfort in gathering the fruit, and in the greater health and beauty of the trees.

In setting young apple trees, it is usual to plant three year old trees with the tops already formed, which are then cut as shown in Fig. 2550. At the end of the season the tree will appear somewhat as in Fig. 2551, which will need some thinning according to the judgment of the owner; and so on from year to year. This annual treatment should never be omitted for a single season, if well formed trees are desired.

PEACH PRUNING.

Wm. Burgess, Queenstown, writes:

SIR,—Some authorities tell us that late spring is the safest time to prune the peach. Is there danger of injuring young peach tree through early pruning?

We have never seen any serious injury from cuts on peach trees made in winter. We see no reason why this work should not go forward during the months of February and March, when there is plenty of time to attend to it. Many of our best peach growers shorten in their peach trees every spring, cutting back from one-half to two-thirds of the young wood. This not only thins out the fruit buds of the current season, but it also increases the amount of bearing wood for the succeeding year, and lengthens the life of the tree.

PRUNING THE DWARF PEAR.

VERY few of our Ontario fruit growers give the least attention to the proper training of their dwarf pear trees. Standards and dwarfs are all pruned after the same manner, and usually that is by no means the best.

In our engraving we present to our readers the proper form in which a dwarf pear tree should be trained. It is called "pyramidal" because of its shape. The first year a thrifty upright is encouraged; the second year the side branches are grown and cut back to within a few inches of the upright stem, taking a care to allow a somewhat longer growth at the bottom than at the top. The third or fourth pruning will bring the tree somewhat nearly into the form shown in Fig. 2552.

The leading shoot is cut back in proportion to its vigor at every annual pruning, and the laterals shortened on the same principle. The lowest branches are always kept the longest by judicious treatment.

After the dwarf pear has been set six or eight years it will be about full size, and the object will be simply to lessen the wood growth and encourage fruitfulness. Should there be too many fruit spurs produced it will be necessary to thin them out more or less.

An orchard of dwarf pear trees so pruned and loaded with fruit is an interesting sight, and a source of pride to the owner.

FIG. 2552. PROPERLY PRUNED DWARF PEAR TREE.

SOME OLD APPLE TREES.

Seymour Keyser, of Hanheim, Herkimer County, N. Y., has two old apple trees on his farm that are record breakers. One of them is 12 feet in circumference. It is a Holland Pippin, and was brought from Holland in the latter part of the seventeenth century. The tree is still bearing fruit. Another tree fell to the ground over half a century ago; the; the body of the original roots have long been decayed. The top of this tree has taken root, and receives its nourishment from the lower end of the top of the original tree. The apples are of the rustycoat variety. This tree was also brought from Holland at the same time as the first mentioned, and is also bearing fruit. —*Country Gentleman.*

A SUCCESSFUL HOUSE MEETING

THE GRIMSBY HORTICULTURAL SOCIETY—A MEETING AT THE HOME OF THE PRESIDENT, MR. A. G. PETTIT—APPLE GROWING DISCUSSED—JOSEPH TWEDDLE, OF FRUITLAND GIVES A TALK.

THE Grimsby Horticultural Society find great profit in house to house meetings. People enjoy a quiet, social evening, which is utterly devoid of formality or class distinction, of either society or church. One paper read and discussed, with a few numbers of music and readings for variety, and an hour for informal conversation seems quite enough to provide.

Sometimes a fruit topic should be taken up to interest the men, sometimes a floral topic to interest the ladies ; and in this way monthly meetings may be held throughout the winter.

Mrs. A. G. Pettit, president of the Grimsby Society, had the February meeting at her own home on the 8th inst., and a good number gathered to hear Mr. Joseph Tweddle, of Fruitland, talk of his experience in apple growing.

APPLE GROWING.

This gentleman, confident in the efficacy of spraying, when associated with pruning and cultivation, rented some orchards that were in a disgraceful condition through neglect, and which were giving their owners no returns. He followed out the directions given in this journal for tillage and spraying, and as a result cleared a good sum for himself after paying all expenses.

"I believe," he said, "that there are rich rewards yet in store for Ontario fruit growers who give proper attention to our ol friend, the apple. With new apple markets opening up both in the east and in the west. it is foolish to destroy an apple orchard, and still more foolish to keep land occupied with apple trees and neglect to care for them. Many of them are simple brush heaps, yielding little, if any, fruit, and that of the poorest quality. Yet even these orchards can be made to produce fruit that is almost, if not quite, perfect.

HOW TO GET FINE APPLES.

"You must get to work and prune out the rubbish and burn it up; head back severely those trees that are weak, to induce fresh growth, but not those that are thrifty, and thus produce uniformity in your orchard ; thin out useless wood ; protect the roots with leguminous crops, such as vetch or clover, sown in July ; cultivate and manure, and then you are ready for *spraying*."

Mr. Tweddle has had excellent results from his work, so everyone wanted to know how he did it.

"My idea in spraying is protection of foliage and fruit from fungi, so I try to keep them well covered with Bordeaux."

"What do you use to keep off insects?" asked some one.

"I use white arsenic in preference to Paris green," he said, "because it remains in suspension much better."

"Does it not burn the foliage?"

"No, not when used with lime. I boil one pound of arsenic and two pounds of lime in three or four gallons of water for about forty-five minutes, and then use the sediment, an arsenic of lime, in 100 gallons of water. I do not find any injury to the foliage from its use in this way. I have tried the same in my plum orchard, and wholly cleared it of curculio."

"I do not see much use in spraying a plum orchard for curculio or rot," said Mr. Rutherford, of Grimsby, "because with most

varieties the yield is too great, and they must be thinned anyway. Why not let curculio and rot thin them?"

This kind of thinning is too late to help the size of those remaining. The work should be done by hand while the plums are very small, and then the remaining samples will grow to a large size.

"It is useless to spray against the wind," said Mr. Tweddle. "You only waste your material and your time, for the wind carries it back. Always spray with the wind. Do not neglect to spray because of wet weather. I find that it is the very time when the work is most needed.

RESULTS.

"My faithful spraying, united with faithful pruning and tillage, gave me last year the finest yield of Baldwins and Greenings ever known in my neighborhood. I took 800 barrels of almost perfect apples off 4½ acres of orchard!"

Mr. Brennan usually sprayed his orchard five times in a season, and the results were so evident that he would never think of giving it up. During his first year in the orchard he did no spraying and had worms, scab and all sorts of evils, but, since he has been careful to spray thoroughly he has harvested first-class fruit every year.

Mr. D. J. McKinnon had great confidence in the apple. His orchard was on rich, deep, sandy loam; it had not been plowed for eight years, and yet last year it was the most profitable fruit he grew, and he has a magnificent orchard of pears, cherries, peaches and grapes. His apple orchard netted him $100 per acre. "I feel sorry for a man," said he, "when I see him cutting out an apple orchard that it has taken perhaps twenty-five years to grow into its present proportions."

THE CHERRY.

Some one said he would like Mr. McKinnon to tell whether the Montmorency or the Wragg was the most profitable.

"Well, I have a very large orchard of both in bearing," said he, "and I believe the Montmorency is best."

"Is it as productive as Wragg?"

"Well, no, not in proportion to its size, for the Wragg hangs in great ropes of fruit as heavy as it can carry; but the Montmorency is a larger growing tree, and on that account I think it yields more fruit to the acre. At first, the Wragg brought higher prices, being so very late in the season; but now that Wraggs are coming into our markets from other parts there is not much difference in the price.

THE CHERRY APHIS.

"What would you do for the black aphis?" asked another.

The chairman, Mr. A. H. Pettit, called upon Mr. Tweddle, and he said he had been greatly interested in the success of his neighbor, Mr. W. M. Orr, in treating aphis, spraying his trees, just before the leaf buds opened, with a strong solution of whale oil soap; a treatment which has completely routed the aphis. The usual formula was one pound to five gallons of water, but he would double that quantity. The application should be made before the buds opened, or else the tiny little aphids would crawl down among the open leaves and hide so as to secure from the effect of the spray.

It is a mystery to many where these young aphids come from so early in spring, and we may explain that eggs are deposited in autumn in the crevices and cracks of the bark of the twigs of the apple tree, and also about the base of the buds. In the early spring they may be easily seen with a glass, they are very minute, oval and shiny black. The same warm sunshine that favors the opening of the tender young leaves, also causes these eggs to hatch out into tiny lice, which locate themselves upon the young leaves and suck their juices. All the first broods are females, which produce living young, hence the wonderful rapidity with which they multipl .

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

THE Canadian League of Civic Art is the name of a new society which was organized under the most favorable auspices, in the Board of Trade Council Chamber, Toronto, on Friday, the 14th of February, 1903. A great wave of public interest in public beauty is sweeping over the whole of North America, and has reached us in Ontario. We trust it will give new vigor to all our horticultural societies, women's institutions, farmers' institutes, churches, school boards, literary societies, and all other bodies interested in civic improvement. We shall be pleased to make this journal a means of communication between these various bodies, and thus to distribute as widely as possible all information within our reach upon this important topic.

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The following is a partial list of the gentlemen present at the organization meeting, men representing the Society of Architects, the Society of Artists, the Fruit Growers' Association of Ontario, the Ontario Horticultural Societies, the Toronto Board of Trade, the Good Roads Association, and many other bodies.

Among those who were present were: Mayor Urquhart, Toronto; R. Tasker Steele, President Hamilton Civic Improvement Association; A. Alexander, President Hamilton Horticultural Society; Judge A. B. Klein, Walkerton; John Cape, Hamilton; Charles O. Dexter, Hamilton; F. B. Greening, Hamilton; M. A. James, Bowmanville; Mayor W. E. Smallfield, Renfrew; James S. Scarff, Woodstock; R. W. Rennie, London; George C. Creelman, Superintendent of Farmers' Institutes; D. McClew, Toronto; R. McLennan, Toronto; L. Woolverton, Grimsby; W. D. A. Ross, Chatham; Major R. Y. Ellis, Toronto; T. H. Race, Mitchell; W. F. W. Fisher, Burlington; Peleg Howland, Toronto; J. P. Hynes, Toronto; John H. Kydd, Bowmanville; William Rickard, M.P.P., Newcastle; G. A. Reid, Toronto; George A. Newell, Toronto; E. G. Routzahn, Dayton, O.; P. W. Hodgetts, St. Catharines; Allan Cassels, Toronto; J. F. Scriver, Montreal; P. J. Carey, Cobourg; W. H. Bunting, St. Catharines; W. R. Gregg, Toronto; G. W. Goodman, Perth; J. D. Hayden, Cobourg; Ald. D. Ewing, Cobourg; Newton D. Galbraith, Hamilton; Rev. Canon Forneret, Hamilton, and A. W. Campbell, Toronto.

Mr. George R. Pattullo, Honorary President of the Woodstock Horticultural Society, was elected chairman of the meeting, and Major H. J. Snelgrove, of Cobourg, was made secretary.

The chairman, Mr. G. R. Patullo, pointed out that in Canada we were still a long way behind both in urban and in rural improvement, and our country did not present those

FIG 253. AN ATTRACTIVE PARK.

evidences of refinement and of culture that were in proportion to her advancement in education. He would like to see the farms and the farm yards made more attractive, the school houses and their surroundings transformed from being the bleakest and most forbidding places to the most inviting and attractive. The park systems should be extended, and in every town and village no time should be lost in securing a site for a beautiful park.

His Worship, Mayor Urquhart, of Toronto, emphasized the great importance of a park system to every town or city, and was pleased to give the hearty welcome of the city of Toronto to this meeting. He wished the project every success, and only hoped that some scheme might be forthcoming by which plans adopted by a municipality for civic improvement might not be neglected by a succeeding body of municipal officers, but might be carried on with some continuity to their completion.

Major Snelgrove said in the first instance his attention had been called to the importance of this civic reformation in an address delivered by Mr. C. C. James, the able Deputy Minister of Agriculture for Ontario, before the Fruit Growers' Association at the Cobourg Convention, where he had suggested that our horticultural societies should become local improvement societies. The speaker said the objects which the promoters of the League had in view were to unite the efforts of all citizens in the systematic development of handsome and wholesome surroundings; to raise the standard of municipal taste and tidiness; to make the Canadian life brighter, healthier and happier. In order to accomplish these aims, they would require organization, perseverance and common sense. Radical reforms along the same lines were taking place in England, whose historic gardens were models of loveliness; and yet it was an appalling fact, which ought to serve as a salutary warning to the

builders of this new nation, that twenty-eight per cent. of the population of England's cities to-day lived in squalor and misery because of unwholesome surroundings. From the year of the World's Fair at Chicago dated this great popular impulse toward civic beauty in America. He proposed that, having effected a permanent Canadian organization, they should all work together for the benefit of all. He would like to see an expert landscape artist employed to go through the Province, visiting all the towns and showing how the finest results could be obtained by the expenditure of mutual labor and money. "But," he said, "in carrying on this work, don't abuse the town authorities and don't attempt to remake the town. Just help it to grow more lovely and liveable each year." He recommended them to encourage the proper planting of shade trees and perennial plants as much as possible. He condemned the common use of water fronts as dumping grounds for tin cans, dead cats and other vile refuse. He would like to see galvanized baskets or boxes provided for the collection of street litter; and unsightly telegraph, telephone and electric light poles wreathed with vines or painted white. Railway station grounds —the town's main gateway—should be beautified. He believed that school gardens would have a most refining influence on our children, educating out of the boys the innate tendency to pilfer fruits and flowers, and instilling in their plastic minds a fondness for the study of nature. He mentioned that in France, Belgium, Austria and Russia the study of horticulture was compulsory in the public schools. He advocated the distribution of flower seeds to school children at say a charge of one cent per package, with a floral exhibition in the fall. Referring to eyesores and how to get rid of them, Major Snelgrove said, "Look at your back yard! Is it tidy and fragrant with flowers? or is it a death-trap, malodorous with the swill-barrel, with heaps of decaying garbage, and its bare ground slimy with greasy dish-water?" In conclusion he said that the Civic League was designed to serve as a federation of organizations aiming to promote municipal improvement, emphasizing the best means for attaining desired ends, and seeking to bring about unity and harmony between all the forces making for the highest public good. He submitted to the conference a draft constitution and by-laws for the new League.

Mr. E. G. Routzahn, Field Secretary of the American League, quieted the objections of some who feared that the new organization would interfere with work along the same line which has recently been inaugurated by the Ontario Department of Agriculture, through Mr. G. C. Creelman, by divorcing the horticultural societies from the Department and thus weakening their effectiveness. He explained that this Canadian League would be simply a Bureau of Information, a help to all existing bodies who had civic improvement as their whole or partial object, without in the least disturbing or interfering with their present relationships. Its object would be to bring together people who had ideas on the objects in view, to gather up these ideas and all accessible material, and to make it public.

Mr. A. W. Campbell said that the organization could be a great help to other associations that had been mentioned, and that later on he expected that the league would extend a hand to the Good Roads Association. He would like to see the association not only work in the the city, but in the smaller towns as well. He believed that on account of the results the Good Roads Association had attained he would before long be able to invite the city people to the country to show them good roads and handsome boulevards. There was no reason for jealousy in the formation of the association. There was plenty of work to be done.

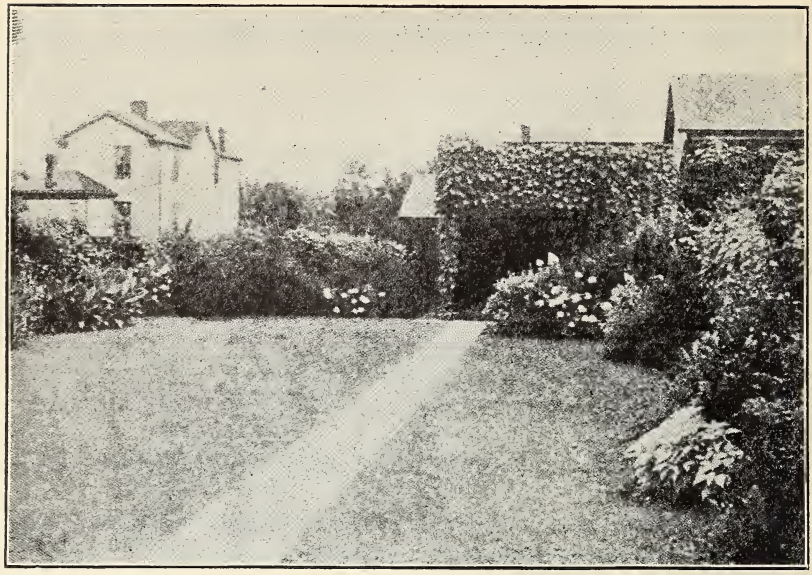

FIG 2554. AN IMPROVED CITY BACK YARD.

Mr. R. Tasker Steele, President of the Civic Improvement Society at Hamilton, gave an interesting account of the work which had been accomplished at Hamilton in co-operation with the Hamilton Horticultural Society. The work had been inaugurated in Hamilton about four years ago, and already much had been done toward beautifying the city. Not much money was needed to promote their objects, for the work was done principally by creating public sentiment in favor of certain improvements, and thus stimulating the municipal authorities to undertake the work. Such work, whether inspired by a civic improvement society, a horticultural society, or a society club, makes better citizens, raises the moral tone of a town, and eventually results in enhancing the values of real estate. In Hamilton they had succeeded in having many improvements, such as alleyways better looked after, streets more systematically cleaned, vacant lots cleared up and made more sightly, waste paper barrels distributed and collected, wire baskets for waste set about in the parks, and generally they had stirred up a general interest in all measures conducive to both sanitation and civic beauty. He outlined many lines of work which might well be undertaken, such as the planting of shrubbery and vines along the vacant sides of factory buildings, the removal of the ugly bill boards from places where they obstructed attractive views, the improvement of our cemeteries, and the stimulating of the members of church and school boards to the decoration of their premises, which are in many cases sadly neglected. He advised that no society undertake too many things at once, but rather to address themselves to one object at a time, and having accomplished that to undertake another. It was not, in Mr. Steele's opinion, at all necessary to have a large club or society to do this work. In Hamilton the working committee consisted of only about eight or ten men, but they were well chosen, and they were busy men too—lawyers, doctors, clergymen and business men—but these men always found time to attend a meeting when called.

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Some discussion took place as to whether this society should become a branch of he

American League, and it was unanimously decided that it should be entirely separate and be known as The Canadian League of Civic Art, and that it should endeavor to extend its influence from the Atlantic to the Pacific.

The committee appointed to draft a constitution also nominated a list of officers, and their report was adopted, the list being as follows:

Honorary President, the Countess of Minto; President, J. D. Hayden, Cobourg; First Vice-President, Major R. Y. Ellis, Toronto; Second Vice-President, R. Tasker Steele, Hamilton; Third Vice-President, W. E. Smallfield, Renfrew; Secretary-Treasurer, Major H. J. Snelgrove, Cobourg; Directors, Messrs. G. R. Pattullo, of Woodstock; J. P. Hynes, of Toronto; W. D. A. Ross, of Chatham; C. C. James, of Toronto; T. H. Race, of Mitchell; G. A. Reid, of Toronto; Dr. James Fletcher, of Ottawa; L. Woolverton, of Grimsby; Judge Klein, of Walkerton; H. F. Duck, of Toronto; R. W. Rennie, of London; M. A. James, of Bowmanville.

In the evening Mr. E. G. Routzahn delivered a most interesting address descriptive of a quickly moving series of pictures which were thrown on a screen in the council room. The first illustrations emphasized the complexity of city problems, and how New York and Chicago are working on plans much the same as those suggested by the Civic Art League and kindred societies of Toronto. The speaker then showed some successful attempts to improve houses and streets both in villages and cities, the general effect of a campaign for civic improvement, the result of campaigns against billboards, overhead wires, and against inactivity among rural councillors.

The lecturer was given the warm thanks of the meeting.

A CIVIC IMPROVEMENT DEPARTMENT

A LETTER FROM

T. H. RACE,

SECRETARY OF MITCHELL HORTICULTURAL SOCIETY.

WHY should we not proceed at once to have a department in our own monthly magazine opened under this heading? The aim of our Association is, more than ever before, to extend its usefulness and popularity by making it cover as much ground as possible with the means we have at our disposal. The Horticulturist is covering more ground to-day, and covering it better than it ever did, and is growing in popularity accordingly. It has now over five thousand monthly readers, and hundreds of them have borne testimony to the improvements in its general character during the past year, and to its increased value both to the fruit grower and to the lover of flowers. Nearly one-half of its pages for the past few months have been devoted to gardening and floriculture, and it has been the intention to add a household and domestic science department just as soon as the means at hand would admit of another enlargement. When that enlargement comes, embracing a department devoted to fruit growing and the fruit interests generally; another to horticulture and civic improvement; a third to household and domestic science, and a fourth

to general matters, we will have a magazine that will compete with any of its kind published on the other side of the border line.

It was my privilege on the 13th of February to attend a meeting in the Board of Trade building, Toronto, called for the purpose of organizing a branch of the American Civic Improvement League. From the language of the circular sent out calling that meeting, I was somewhat curious to know what attitude the proposed organization intended to assume toward our horticultural societies and the excellent work they are doing throughout the province. I was pleased to meet there a considerable number of horticultural workers, who like myself were ready to co-operate with any organization whose aim and purpose was the purifying and beautifying of the cities, towns and rural homes of this land of ours, but who, like myself, were in a maze of curiosity for the same reason referred to above. The atmosphere was soon cleared, however, by a very general repudiation of the language of the circular in question, and this at once opened the way to a happy blending and natural co-operation of the apparently threatening elements. The meeting proved one of mutual profit, and the illustrated lecture in the evening a great stimulus to every worker along the line of civic improvement, and I hope the Horticulturist will give the new organization—more fully referred to elsewhere in this number—all the support and encouragement that its aims and objects deserve.

But because of the new organization we should not relax our efforts in connection with our horticultural work now being done by our affiliated horticultural societies. They have been doing the very work mapped out by the new organization for years, and are doing it better to-day than it has ever been done before. They are in fact doing a greater work than is mapped out by the new organization, for they are reaching out into the rural districts and touching the farm home as well as the towns and cities. Under the auspices of the Minister of Agriculture, and the able and energetic management of our secretary, Mr. G. C. Creelman, they promise this year and onward to do better and greater work than they have yet done, and at best the new organization can only be a helpful auxiliary, whose field will be principally confined to the cities and larger towns.

In response to the lesson of the annual meeting at Cobourg over a year ago, a great push forward was made by our secretary last year in dividing the meeting at Walkerton into two departments, and the horticultural department proved the greater attraction of the two. This further lesson has suggested the advisability of a special horticultural meeting in Toronto next fall, after the proposed annual meeting at Leamington, to which representatives from all our affiliated societies will be invited; and now I would suggest, representatives also from the Civic Improvement Leagues. This, however, is a matter of more mature consideration and one which may safely be left in the hands of our energetic secretary and manager. In the meantime our only course and plain duty is to push our work ahead, and I think the Minister of Agriculture on the one hand and our affiliated societies on the other will sustain our secretary in going on with the work he took in charge only so short a time ago, and which has made such gratifying progress under his management. With the new Civic Improvement League as a helpful auxiliary, our societies should go into the splendid work they have been doing in the past with greater vigor than ever.

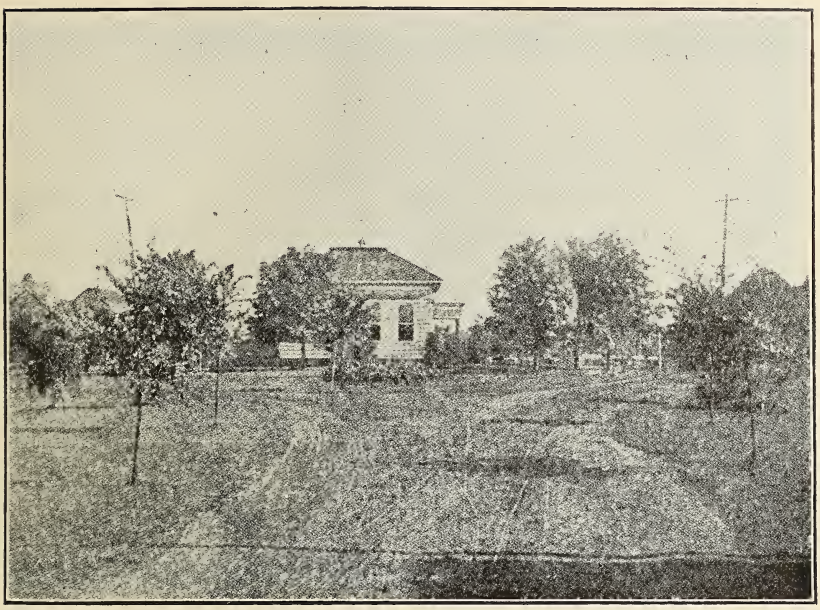

Fig. 2555. An Improved Village School.

POINTERS FOR OUR SOCIETIES

BY

MISS JESSIE M. GOOD,

SPRINGFIELD, OHIO, IN THE "HOW OF IMPROVEMENT WORK."

THE needs of communities differ so widely that each association must decide for itself that which the town most lacks to make it beautiful and healthful, and supply what is lacking, no matter whether it is window gardens or waterworks.

STREET TREES.

If your town is bleak and unshaded, plant trees, but give thought to what and how you plant. Because you love elms, you certainly show a selfish affection when you plant them twenty feet apart upon a paved street sixty feet wide, knowing, as you must if you love them, that the elm is one of the trees that needs great space and moisture for its full development. Few shade trees should be planted closer together than from twenty-five to thirty-five feet. Why not intersperse them with some ornamental flowering trees, red buds, dog woods, crab apples, catalpas, etc.? Why always plant forest trees for city shade? Why not plant fruit trees? I see you smiling, but in Erie, Pa., I know that years ago Parade street was shaded for many squares by cherry trees that were a perennial delight, beautiful in their neat, compact growth and glossy foliage, and a joy when in blossom and fruitage. But did not the boys steal the fruit, you ask? The loss was not material. Boys who have all the ripe cherries they want at home will not

steal cherries away from home. They will hunt for green apples.

SIDEWALKS.

If it is sidewalks you most need, create such a strong public sentiment in their favor that those reticent old taxpayers who always protest against everything but a reduction of taxes will not dare fight against the improvement. But do not think when you have laid new sidewalks and planted your trees that your work is finished. It is but begun.

BACK YARDS.

What is the condition of your back yard and alley? Is the latter an impassable mire in winter and a weedy lane in summer, or is it a well-graded, rolled and drained passage way? Is your back yard green with grass and gay with flowers, making it a beautiful and wholesome place in which your children may play? Or, is it a death-trap, adorned with a fragrant swill barrel, heaps of ashes and garbage, piles of old boards, an untidy fence, while the bare ground is soaked with greasy dishwater, making it a place abhorrent to your children as a playground, and as unsafe from a sanitary point of view as a sewer? If you have such a back yard can wonder why Johnny and Willie prefer to play in the street instead of the yard? I think their preference for the street shows proper instinct and good judgment.

Does your grocer and fruiterer expose the foods he expects you to eat to the dusty contagion of the street? If so, you should teach him that you never offer such contaminated foods to your family. If an r-ganization of influential housekeepers speaks clearly upon this point, glass-covered boxes will be quickly provided that will show the goods quite as well.

FOOD SUPPLY.

How about your dairy supply? In a certain town a shocking infant mortality was traced to the milk. A body of indignant women making a protest against an incompetent dairy inspector was told by the politician, of whom the inspector was a protege, that they were going outside their sphere when meddling in politics. He was quickly answered that "women's sphere was not only outside the home but inside the baby." A weekly or fortnightly visit by a committee from an improvement association would have a deal to do with wholesome dairy premises. No educated woman of this age dares to be indifferent as to the source of the food with which she supplies her family. Beauty and health are synonymous terms—you cannot have one without the other.

THE VILLAGE SCHOOL.

This little temple of learning is a model one for a village school. It is fifty feet by sixty in size. The two rooms on one side and the large one on the other have sliding partitions which permit them to be thrown into one large hall for lecture or concert. There are cases full of books, pictures ot great men, and a few good water colors on the wall. In the yard are trees, flower beds and swings. It is a pity that spring blooming shrubbery and bulbs are not more generally planted about school houses. Lilacs, snowballs, syringas, deutzias, weigelias, etc., if planted along the wall will take but little space, serve as a background for the flower beds, and fill the school room with fragrance. On Arbor Day why always plant forest trees? Why not plant a cherry tree that will ripen its fruit before school closes, or an apple tree for fall ripening? Why not nut trees? The training in honor and self restrain required in waiting until fruit or nuts are ripe is a finer lesson than can be obtained from text books. Fruit and nut trees give wider opportunities for nature study, as well as for pretty school festivals when the fruit and nuts are ripe.

BEAUTIFICATION OF WASTE PLACES

BY

S. M. MEEHAN,

EDITOR FLORAL LIFE, GERMANTOWN, PHILADELPHIA.

IT is my intention to at once dispel any impression you may have that I am going into the mysteries of landscape gardening, to name a lot of rules you should follow, and give other specific advice, or that I intend naming lists of desirable plants, describing their merits. Such things are details that should be worked out to fit the individual needs. But rather I wish to reveal some common opportunities by which we may brighten our lives through the medium of Dame Nature and as students of ornamental plant life.

There is no question but that all country and suburban places have their waste places, waste because they have either had all the beauty crowded out of them or have been utterly neglected.

LOVELY SURROUNDINGS.

A dwelling place should be made a home in every sense of the word. The grounds immediately surrounding the house and beyond should be made attractive and lovely to those who live right on the spot. But then we must think of others too. We want to please our visitors, friends and neighbors, and in fact every one that passes by. It is rightly a matter for personal pride that our surroundings be made to speak our appreciation for the beauties of nature. Therefore shall we be careful to view whatever plans we may make from the two points.

Have you ever stopped to consider how badly proportioned our average country places are, having in mind those where farming, fruit growing or similar rural work is carried on? Fortunate indeed is the 50 or 100 acre place that has half an acre of home grounds about the house. Even there the chickens and other animals are frequently allowed to hold possession to the destruction of any pretty gardening plans.

In comparison with the owner of city property, what a much better opportunity has the countryman and fruit grower with an abundance of low-priced land to have a beautiful garden home with a little expense and accompanied by greater personal interest.

LAWN AND FLOWER GARDEN.

But few country homes exist where from one to five acres could not be set aside for lawn and flower gardens. "It would not pay," I hear some one say. Perhaps the balance in dollars and cents would be a little less, but is the pleasure and comfort to count for nothing? If the financial results are to be considered above everything else, and the loss of that much ground is serious, then the owner must be working the remainder of his property on very close margin, and his methods need investigating.

A good expanse of lawn may be considered one of the chief aims, because when that is set apart it offers many opportunities for development in detail and striking effects. Above all, set out with the determination it is to be a good lawn of good grass. To be half-hearted in home-making is to create waste places, and those we have no use for.

Decide to have, if possible, a flower garden, not simply flower beds and borders around the grounds, but something of an enclosure into which one may pass and feel that he is in a different atmosphere—where flowers are on every side inviting admira-

tion and interest. I know of no phase of gardening that is more delightful, invigorating and care-destroying than that which relates to hardy flowers.

A carefully selected assortment gives a profusion of flowers all the year, from the very earliest spring days, when some will open their adventurous blossoms almost from out of the snow, to the time when some will defy the lighter frosts of autumn.

A ROSE GARDEN.

A rose garden, which may be made a section of a general flower garden, is much more pleasing than where the roses are simply scattered here and there. They are not fitted for promiscuous planting, and always respond better to definite treatment.

If a fine lawn offers opportunities for detailed development, equally so does the flower garden. There may be bowers, turf walks and rustic seats, trellises, vine covered archways and what not. Utility need not be dismissed entirely, for some of the handsomest flower gardens are merely generous borders to vegetable patches. Or where the owner is concerned in marketing, cut flowers offer opportunities for quite a neat recompense for labor and expenditures.

Would not this idea also add to the various proffered solutions of the farm question, How shall we keep the boys on the farm?

Having determined to beautify our home grounds, to have fine lawns well planted, a flower garden and handsome shade and ornamental trees, what is the best course to pursue in securing them.

PLANTING PLAN NEEDED.

Right here let me say that unless the ideas are well thought out and right plans laid, it would be most unsatisfactory to do anything unusual. To plant ground for ornamental effect and permanency requires just as much and more care and intelligent judgment as to plan out a large fruit orchard or piece of farm land. A good knowledge of plants and their characters must be had. The effect they will produce in position both at the start and in the future must be recognized.

The smallest place should have a plan made of it, put roughly on paper, or kept well in the head if not intricate—the former method is much the most satisfactory. Make this plan complete as possible. Allow for every little embellishment, though the minor details may be subject to change when the work is taken up.

The economy of a plan is in its perfection. Mistakes are not so likely to occur, and everything is located in harmony. Above all, such a plan can be carried out one part at a time without danger of having something interfere with some idea that might otherwise have presented itself at a future time. The lawn could be started the first year, and a few trees planted as desired about the house and at the driveway entrance, with perhaps sufficient properly grouped in intermediate positions to relieve any bareness that might exist. The next season shrubbery borders and groups might be planted with additional trees on the lawn for ornamental purposes. The flower garden need not follow till later. Meanwhile, the pleasure accompanying development would be going on with always some little thing to look forward to.

EXPERT ADVICE.

If you have the time to study all these things out properly it will be a source of satisfaction and pleasure, and you have but to show the completed scheme to some one competent to criticise it. If you have not that time, it will be to your profit to spend a few dollars on expert advice.

Plant trees and shrubs that have permanent value and not too ordinary. Avoid the cheap, quick-growing trees, which are invariably less satisfactory in the end and are

short-lived. I will only name the oaks as being especially worthy trees, and ones that will never bring regret. A few really rare plants will increase the interest in your place wonderfully. Such beautiful things as the yellow wood, gingko, Sophora, and Japanese varnish tree are not difficult to obtain, yet they are not common.

VINES.

This paper has dealt with waste places in a rather broad sense. There are many little places that would seem to come more strictly under that heading that I have not mentioned. There may be an old stump of a tree which would be beautified if a vine were allowed to clamber over it. An unusual piece of swampy ground could be made beautiful by planting in it some flags and Japanese iris, mallows, coreopsis, and even many swamp-loving shrubs like the common elderberry, white fringe and swamp magnolia.

The walls of your house would likely be very much improved by a clinging vine. The fence along the front of your property could have a few vines placed at some of the posts. Many similar places will suggest themselves to you when you give it thought, and it is unnecessary for me to attempt further detail. My greatest fear is that we men of business allow waste places to locate in our minds. We think of utility, what we can plant here for profit and there for profit, Everything must pay in dollars and cents. These waste places I hope my hearers will plant up at once with thoughts of the beauties of nature. All else that I have suggested will then be carried out in natural course.

KINCARDINE

EXTRACT FROM SECRETARY BARKER'S ANNUAL REPORT — AFFILIATION PAYS.

YOUR Secretary regards our affiliation with The Ontario Fruit Growers' Association as of so much importance and advantage to the Horticultural Societies of Ontario that it would indicate unpardonable ingratitude on our part were we to omit a special reference to that most useful organization which year after year takes us into its confidence and sends experienced instructors to teach the improved methods of beautifying our homes as well also useful lessons on horticulture and floriculture, the benefit of which cannot be estimated from a benefit of which cannot be estimated from a monetary standpoint. We feel sure that the visits made to us by the Ontario Fruit Growers' Association during the six years of our existence as a society cannot but be remembered with a great deal of pleasure. Who amongst us does not frequently call to mind the pleasing instructions we received from them all, and especially from Mesdames Rose and Maddock, of the Royal City of Guelph, and from Miss Torrance, of Chatauguay, Quebec. The last named lady visited us in the spring of 1902, accompanied by Rev. E. B. Stevenson, of Jordan Station, recognized as one of the leading Canadian authorities on that most delicious fruit, the strawberry, and its culture. That gentleman's address on how to grow large strawberries and how to successfully treat the bulbs of the hyacinth so as to ensure a profusion of bloom all through the winter sea-

son, when other blooms are so scarce, will, we are sure, be long remembered by many of us, and doubtless some amongst us are endeavoring to profit by the instruction given by that gentleman.

The following trees and plants have been distributed to the members during the year:

Fruit trees, 246; grape vines, 49; strawberry plants, 3,375; black raspberry, 100; dewberry, 10; flowers, plants, etc., 5,016; pea trees, 10.

THE WAY TO THE BACK DOOR

THE accompanying illustration shows a commendable way in which the landscape gardener arranges the path leading from the street to the back door. It is a situation very commonly met with The premises are not large, the front of the house and expanse of lawn is to the right, and this walk was made for the grocer, butcher, and so forth. Where it is given a short turn the shrubbery is thickened so that the back yard is effectually screened. The walk is made a little wider in front than back, causing an impression of greater depth than really exists. It is a success, so radically different from what is usually made shift with in our city residences. The trouble is, such a result requires five years' time to bring forth. While people neglect their places entirely for many years, when they do order it properly arranged they want it complete immediately. Such plantings of shrubbery should be embellished with numerous clumps of perennials. Those to the right, fronting on the open lawn, can be almost any you may desire, according to the requirements of color, size, season of bloom and so forth, but those along the edges of the walk must be shade enduring, such as columbine, trilliums, violets, hemerocallis and so forth.—*American Florist.*

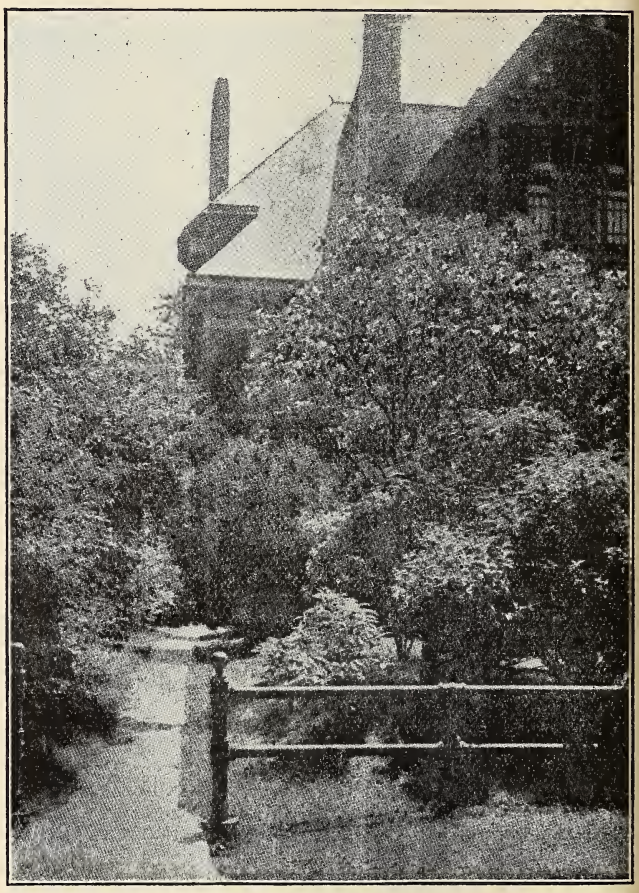

FIG. 2556. THE WAY TO THE BACK DOOR.

SPRING NOTES FOR LAWN, FLOWER GARDEN AND WINDOW.

BORDER PLANTS — WINDOW PLANTS — FLOWERING BULBS—ANNUALS—SEEDS FOR BORDER PLANTING.

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH.

THE mild, sloppy weather we are experiencing at the present date (Feb. 11th) bids fair to denude plant life entirely of its protective blanket of snow. Premature and partial spring weather is very trying and often fatal to plant life. Divested of their warm winter covering of snow, exposed oftentimes to sharp frost at night and bright sunshine in the day time, producing alternate periods of freezing and thawing, with intervals of cold parching winds, these conditions prove more fatal to plant life than when more severe weather prevails and the plants are still covered in their protective mantle of snow.

It is in these prematurely early spring seasons that the plant lover must take more than ordinary precautions with plants or shrubs of questionable hardiness on the lawn or in the garden. Tender rose bushes, or shrubs that have perhaps been unprotected during the winter except for their covering of snow, will benefit very much by having some protective material such as a light covering of long straw or strawy manure, or even a few fresh pine or cedar boughs placed so as to shield them at least partially from the parching wind and sun, that are more to be dreaded really than the frost.

BORDER PLANTS.

Border plants, such as biennial Campanulas, Hollyhocks, perennial Phlox, Polyanthus Primrose, and even violets, will be greatly benefitted by a slight covering of some light protective material, if weather conditions exist in early March such as I have described. Premature spring weather often means a premature death of tender plant life, unless protective measures are taken in

FIG. 2557. NARCISSUS, VON SION.

FIG. 2558. BEGONIA MANICATA AUREA.

time. Even then it is difficult to pull them through the changeable weather often experienced in late winter and early spring.

BORDERS.

BULB BEDS OR BORDERS.—Beds or even clumps of bulbs in borders that have been protected during winter are oftentimes uncovered too hastily in early spring. Take the winter covering from these by degrees as warmer weather approaches. Examine the beds or borders about the end of March or early in April. If the frost is out of the covering, remove the wettest and most rotten part of the covering, replacing the drier portion of the covering and allow it to remain until more settled and warmer spring weather prevails, when it can be taken away altogether. This method of uncovering protected plants will apply equally to all winter protected shrubs and plants. Never expose suddenly and entirely any tender plant or bulb, to the uncertain weather conditions of late winter or early spring. Always remove the covering from winter protected plants in dull showery weather if possible, as the bright sunshine is often as hurtful to tender plant growth in early spring as frosts.

WINDOW PLANTS.

FLOWERING BULBS.—Pots of any of these, such as Narcissus, Tulips and Hyacinths, should have a plentiful supply of water after they are well started into growth or when in flower. When the flowers have faded do not withold water entirely from the plants, more especially the various kinds of Narcissus and Tulips. When the flowers of these begin to look shabby stand the pots a little in the background, where they can still have some light and perhaps a little sunshine, and dry the soil up gradually in the pots. Possibly the foliage will keep fresh for a week or two. When it shows signs of decay give the plant less and less water until the foliage has become quite yellow. In early spring plant the bulbs out in the open border as soon as the ground is in proper condition. Place a good sized stake to mark the spot where they are planted, and do not disturb them when digging the border. It may be two years before you get much bloom from them, but if they are left undisturbed they generally give good and constant results year after year when once they become established. Bulbs forced into flower early in the season in pots are of very little if any use for pot culture the second season. Most varieties of the Narcissi naturalize well when planted in the open ground, and are quite hardy.

FREESIAS.—These should not be dried off hastily. Give them water less frequently after they are out of flower, until the foliage is quite yellow, when no more water should

FIG. 2559. TALL BRANCHING CINERARIA.

be given them. Keep them dry until next season in the pots.

BEGONIAS.—Two of the very best varieties of these for window culture are Begonia Manicata Aurea and Begonia Paul Bruant. The first named of these makes a most attractive and lasting window plant. (Fig. 2558.) Its beautiful large leaves of pale glossy green, blotched and mottled with spots of a pale gold color, will of themselves entitle this plant to a place in the front ranks of this popular species of plants. But when its richly marked foliage is surmounted by its tall delicate racemes of pale pink flowers, it is indeed a plant of great beauty. I have known plants of this variety of Begonia kept and grown successfully in windows for several years without being removed, except for repotting or at house cleaning time, and each year give a wealth of their delicate blossom at this season of the year, the foliage at all times being bright and attractive. Begonia Paul Bruant is another good window Begonia, but is not quite as robust or pretty a variety as B. Manicata Aurea. The plain leaved variety, Begonia Manicata, is also a good window variety, having almost as robust a habit, but is without the beautiful markings on its leaves. The leaves of both varieties of B. Manicata are of a thick leathery texture, a feature that makes them of so much value as house or window plants, being better able to resist the destructive influence that the dry atmosphere of a dwelling house usually has on this class of plant.

CINERARIAS.—Plants of these beautiful showy annuals are very subject to green fly

FIG. 2560. DWARF CINERARIA.

or aphis, more especially on the underneath side of the foliage. Tobacco water applied to the foliage infested with aphis is a good remedy, but is far more successful as a preventive, as these insects are very hard to dispose of on Cinerarias when they once get on the plants. By starting early in the season and applying regularly about once a week the tobacco solution so often recommended in these columns, the green fly can be kept from them. When the plants are out of bloom throw them on the rubbish pile, as they are of no further use as decorative plants. Cinerarias are not profitable window plants, and are uncertain and fickle plants to grow, but as greenhouse plants they are very showy. (The accompanying cuts show both the tall and dwarf type of these plants.)

Tuberous Begonias.—The tubers of these summer flowering Begonias can now be started into growth. As a rule it is best to start them in sand only. Fill a pot or a shallow box with fine sharp sand, place the bulb in the sand so that the top of the bulb or tuber is just under the surface of the sand. Water so as to moisten all the sand. Keep the sand moist, but not soddened. A temperature of 60 to 65 degrees will suit these Begonias to start in. In about two or three weeks the bulbs will require potting, or as soon as the roots are an inch in length. A five or six inch pot will usually suit an ordinary sized bulb, as these should average about an inch or perhaps two inches in diameter. The latter sized tuber would require a seven inch pot. Use plenty of drainage, and a fairly rich loamy soil, in which there has been mixed a small quantity of sand. Water well once after planting, then give water sparingly until the plants are well established. The tuber should be just under the soil when potted, as recommended in starting them. I prefer potting them into large sized pots at first, to repotting them as required into larger pots, as they

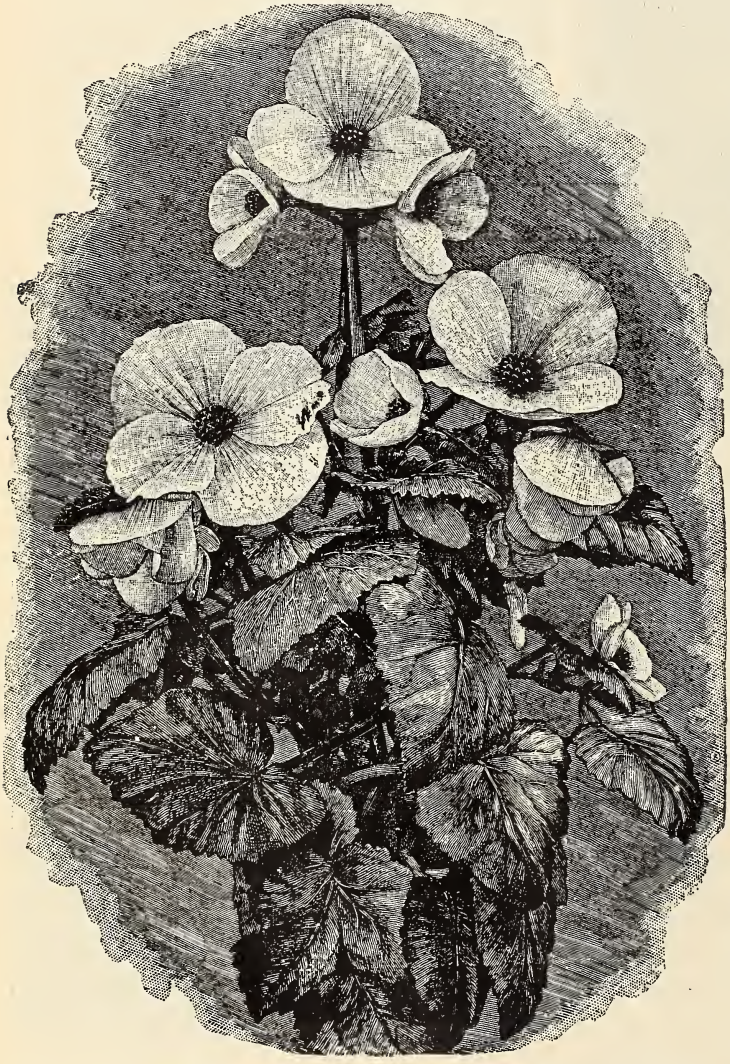

Fig. 2561. Tuberous Begonia—Sutton's Queen of the White.

are tender and difficult to repot sometimes. Place an inch of broken pot at the bottom of the pot for drainage.

SEEDS FOR BORDERS.

Border Flower Seeds. — Sweet Peas, Zinnia, Mignonette, Antirrhinum, Sweet William, Aquilegia, Dianthus, Marguerite Carnation and Gaillardia, as well as the annual Wallflowers, are amongst the varieties of flower seeds that should be sown as early as possible in the open ground. No flower garden should be without the last named variety of these sweet-scented English flowers that are such favorites with every one that loves a delicately perfumed and easily grown flower. The annual type of these plants is very similar to the perennial type, except that the plants are not as strong growing and the flowers not quite as large, but their long and continuous habit of flowering and their delicious perfume make them indispensable in a collection of garden flowers. I picked large handfuls of these as late as November 10th, after most all of the border flowers were spoiled by early frosts. If sown early in April in a pot in the window and transplanted in the border early in May, they can be had in flower in July. The other varieties mentioned (except the Sweet Pea and possibly the Mignonette), as well as other kinds of annuals and perennials, can be sown indoors in pots or boxes for transplanting outside, so as to secure early flowering results.

Question Drawer

SCAB IN POTATOES.

Sir,—Will the mixture of lime, sulphur and salt cure scab in potatoes.

James Walker, Fairville, N.B.

For scab in potatoes I have found copper sulphate solution an excellent remedy. It is useful both for treating the seed previous to planting and for spraying the growing plants to prevent rust, etc. Lime, sulphur and salt, or lime and sulphur without salt, is not suitable for foliage in any case. Used at one-third of what we consider normal strength it will defoliate peach trees very quickly. Other fruit trees are slightly more resistive.

G. E. Fisher, Burlington.

WHALE OIL SOAP.

Sir.—Where can Whale Oil Soap be purchased, and what is the usual price for it in 2,000 lb. lots? Is there any simple way of testing quality?

Queenstown. Wm. Burgess.

I know of no firm in Canada making Whale Oil Soap. David Morton & Sons, of Hamilton, made our last year's supply, and delivered it at four cents per lb. They do not keep the necessary material on hand, and do not make it except in large lots. Morton's soap was the best we have used. G. E. Fisher, Freeman.

STICKY BANDAGE.

Sir,—Is the mixture of resin and castor oil applied to the bark of the trunks of the trees?

Fairville, N. B. James Walker.

In using the sticky bandage (castor oil and resin) the trees should be very carefully scraped at any convenient height—that is, a strip six or eight inches wide around the trunk—and the mixture applied with a brush, making a sticky bandage about two inches wide right on the bark. These two inches will soon spread to four inches, and if the weather warms up it will spread more. The first treatment will be absorbed by the bark and must be repeated. The second application will remain sticky a long time.

G. E. Fisher, Burlington.

THE VEGETABLE GARDEN

MANURE HOT BEDS.

THE construction and management of hot-beds is an exceedingly simple matter, and yet it requires careful attention to keep plants growing in a healthy condition. Manure beds are most commonly used, horse manure being preferable to any other ready available substance. Fresh manure recently removed from the stable is the best, but if collected in too small quantities, it should be frequently spread through the winter in order to keep it from heating and spoiling before spring. If a good proportion of fine straw or forest leaves are used in the bedding it improves the manure greatly for hot-bed purposes.

When ready to begin operations the manure should be forked over, shaken out finely and *thrown into a high conical heap to heat;* if anyways dry it should be watered until well dampened throughout the heap. Leave it standing in this heap about a week and it will surely heat and begin smoking like a small volcano.

There are two methods of forming the bed, some digging a pit and sinking the manure in it, and others simply building the manure up into a square bed and setting the

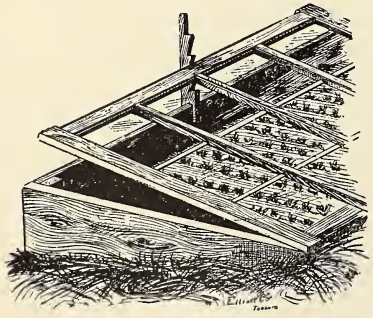

FIG. 2562. COLD FRAME.

frame on it; the first named method requires the most labor, the second the most manure, so we will let labor *vs.* manure decide which you shall adopt.

Fig. 2563 shows a perspective view of a bed constructed on the manure without a pit. If the manure is fine, and contains little or no long straw, it will be found necessary to put a plank frame around it to keep it in position. After levelling the manure there should be three or four narrow boards laid across it on which to rest the hot-bed frame, so that after the manure heats all will settle together, otherwise the weight of the frame and sash will force it down into the manure, and the centre of the bed will appear to raise and perhaps displace the plants.

Of course you should select a spot for the bed which is sheltered as much as possible on the north and west by some building or high board fence. The sash should slope gently towards the south or east, both in order to carry off the rain water readily and to catch the sun's rays and gain light and warmth.

The most common sashes are 3 x 6 feet. The frame should therefore be made six feet wide and as long as necessary to accommodate the number of sashes to be used.

A vital point always to be observed in making a hot-bed is *to spread the manure down while hot,* it then continues to heat, but if spread down cold it will heat very slowly or unevenly or perhaps not at all. Early in spring, when considerable cold weather may yet be expected, it will be necessary to use about a common wagon box full of manure to each sash, but later in the season, when forming beds in which to transplant seedlings, one-half that quantity will suffice.

The soil to be used should be prepared in advance. It must be light, loose and rich.

Good sod placed in a heap with alternate layers of cow manure and allowed to stand and decay for about one year, makes a fine compost for starting a hot-bed. In removing the soil from an old hot-bed, shovel out some of the fermented manure with it each year, this will keep it loose and in good mechanical condition. The poorest article I ever saw used in a hot-bed was sand washed from the road, which it was thought would be rich and nice, but it packed down so hard that the whole bed was a failure.

Soil should be placed on the manure to a depth of from four to six inches, and the glasses adjusted properly. After the soil becomes warm, sow the seed in rows about four inches apart and scatter them quite thickly in the rows. Never sow broadcast, as the labor of keeping free from weeds is much greater. When the seedlings are about three inches high, they should be transplanted into rows, 3 x 6 inches, and as soon as these need more room, or are in danger of running up spindling, transplant again.

In transplanting tomato plants, the stem should be set down well into the soil, and will take root wherever covered. The object sought is plenty of fibrous roots on a short stocky stem. The temperature of the beds must be closely watched, though it may vary considerably. The mercury may run from 50 to 80 degrees, though the mean, 65 degrees, should be as closely kept as possible for tomatoes, pepper, etc. Cabbage and cauliflower plants require much less heat, and should never be placed in the same bed with tomatoes. In fact, very little or no bottom heat is required to produce good early cabbage plants. Fit a frame, as for a hot-bed, except to omit the manure for bottom heat, cover it with sash, and sow the bed early in March, and better plants will usually result than if bottom heat is used. (See Fig. 2562).—*Tillinghast Manual.*

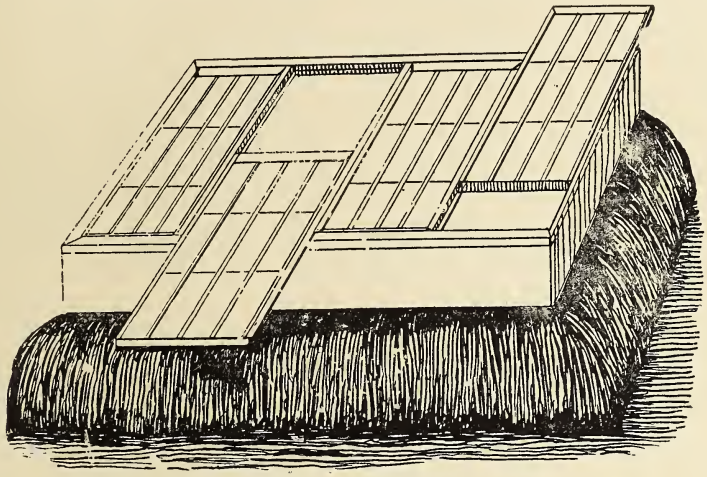

FIG. 2563. HOT BED.

GINSENG CULTURE.

SIR,—Please give me full information on Ginseng Culture.

Queenstown. W. B.

To give detailed instruction would take much time and space. We would, therefor, refer our correspondent to a small book entitled "Ginseng", by M. G. Kains, published by the Orange Judd Co., New York City; or to the Dept. of Agriculture, Washington, D. C., for the Farmers' Bulletin on this subject.

TOMATO GROWERS

A MEETING AT HAMILTON—ADVANCE PRICES DEMANDED.

A MEETING of tomato growers of Wentworth county was held at the Dominion hotel Saturday for the purpose of considering what steps it would be advisable to take to get better prices from canners for tomatoes grown this summer than were paid last fall. There was an exceptionally good attendance, nearly 100 tillers of the soil being present. It took them a long time to get down to business, there being no person anxious to accept the responsibility of setting the wheels in motion, but when they did get started they transacted a large volume of business in a remarkably short space of time.

The first question discussed was whether or not it would be advisable to form a Tomato Growers' Association, and recognising the fact that in union there was strength, it did not take long to decide in the affirmative. The association starts out with about 75 members, and the officers expect that this number will be doubled when the farmers generally understand what the aims and objects of the association are. As an evidence of good faith, those who joined on Saturday deposited 25 cents each with the secretary. The election of officers was next proceeded with. R. H. Lewis, of Bartonville, was the unanimous choice for president, and E. J. Mahoney was elected secretary.

Having completed their organization the tomato growers started in to discuss other matters, the first of which was the price to be demanded for tomatoes next fall. Last fall the canners paid only 20 cents a bushel for tomatoes, and it was agreed that this figure was far too low. Some thought 30 cents a bushel should be the minimum. Others wanted to split the difference by setting the price at 25 cents a bushel. After much discussion it was decided to allow every grower to make the best bargain he could with the canners, but every member of the association affixed his signature to an agreement not to accept less than 25 cents a bushel. If the canners will not contract for tomatoes at this price, there will be few of them grown this fall, as the farmers are very much in earnest in their demands. They have little fear of outside competition, as the freight rates are sufficiently high to protect them, and as they consider that their grievance is a just one they intend to fight to a finish.

The growers have another grievance against the canners, which they intend to have settled before setting out their plants this spring. The contracts which they have been asked and practically compelled to sign in former years contained an objectionable clause. It gave the canners the privilege of saying when the tomatoes were to be delivered. Frequently they were not prepared to accept delivery when the tomatoes were ripe, and the growers had no alternative but to let them rot on the ground. Later the canners would compel them to deliver the quantity contracted for. This clause of the contract will have to be struck out or modified. The growers will insist on being allowed to deliver their goods when they are ready.

Some of the canners had a talk with the officers of the Growers' Association after the meeting, and signified their willingness to comply with the demands of the association. The officers of the two associations will probably meet in the near future to talk the matter over, and to draw up a new form of contract.

WINTER AND SPRING CULTURE OF ASPARAGUS.

C. L. ALLEN, NEW YORK.

THE asparagus bed is quite apt to be neglected at this season, or the care required to keep it to a high state of productiveness overlooked. Before the first of December the tops should be cut and the bed or field cleared of weeds. It is highly important that all the seed should be taken off, as the greatest enemy the asparagus has, in the way of weeds, is asparagus, and it is almost impossible to get clear of superfluous plants when once established. When this work is finished, cover the bed to the depth of three inches with coarse manure, which will not only enrich the soil, but will keep out the frost, which is highly essential. Like all other siliceous plants, the asparagus is making preparations in winter for its spring work. This it cannot do if the soil is frozen. In climates where freezing and thawing alternate in rapid succession, the buds will be greatly benefited if covered sufficiently deep with leaves or seaweed, on top of the manure, so that it will be impossible for the frost to reach the crown of the plants. The first work in spring should be to remove all the covering except the fine manure, which should be carefully forked in so that the crowns will not be injured by the tines of the fork. While the asparagus is, apparently, a hardy plant, and one almost impossible to exterminate, there is no plant that resents injury so quickly, as will be seen by the difference in the size and number of edible shoots it will send up. Forking the beds should not be neglected, as the early admission of the sun and rain into the ground induces the plants to throw up shoots of superior size. Another step in the right direction is to keep the ground entirely free from weeds the entire season, as these take from the plants the strength required for their own growth, and the asparagus needs it all.

Although there is a difference of opinion as to the benefit of salt on asparagus, most of the best growers on Long Island cover their beds with salt as soon as the ground is cleared and the manure forked in in the spring, to a depth of half an inch in some cases. Although that much may not be required, it certainly does no harm, but an application of salt so that the ground appears as if covered with snow is considered by many an absolute necessity if best results are to be expected.

GARDEN PEAS.

TWO years ago I recommended the Gradus Pea as the best early garden pea that I had ever grown. I am still of the same mind, but some of my friends have written that they have tried the Gradus and been disappointed. They must have been misled by the catalogues. Some of the latter offer the Gradus or Prosperity. I have tried that. It is not the genuine Gradus. I got my genuine stock lately from John A. Bruce & Co., Hamilton, but had it direct from a friend in England before it was offered for sale in Canada.

Mitchell. T. H. RACE.

The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

THE INDEX for this Journal for 1902 is now ready, and may be had from the secretary on application; to whom, also, orders for binding the Journal should be addressed. We have a fine stamp for the back and sides, which may be finished in black or in gold.

GIDEON MEMORIAL.—At their December meeting the Minnesota Horticultural Society called for subscriptions toward a memorial to the late Peter Gideon, the originator of the Wealthy apple. One novel method adopted was the building of a large pyramid of Wealthy apples on a table in the hall, which were sold to the members at $1.00 a piece.

THE SPIRAEA ANTHONY WATERER, which was distributed among our subscribers, would bloom more freely in late summer if cut down closely in the spring. The bushes will be more compact and more attractive. Many other summer flowering shrubs would be better of similar treatment.

THE LATE MRS. JOHN COWAN.—On the morning of the 23rd of January, at Montreal, there passed away, at the age of 86, one to whom the readers of this Journal are indebted for many poetical contributions on Garden lore, signed "Grandma Servan." She was a native of Edinburgh, Scotland, and came to Canada about the year 1858.

CORRECT SPRAYING.

Thorough spraying cannot be done with a poor pump, and antiquated methods The necessity for fast work, the importance of having a pump which is simple to operate and to keep clean, point very clearly to the Hardie Spray Pump as the practical ideal for use in a modern, well-kept orchard.

The fruit grower has learned by sad experience that rubber or leather valves are a delusion and a snare; that working parts, which are made of iron and cheap metals, are very annoying, on account of their liability to corrode and to get out of order; that a pump which requires an expert mechanic to adjust it is almost more trouble than the insect life, which it is supposed to exterminate. In short, a modern fruit grower demands a simple practical spray pump, where the working parts are of brass, made on the true mechanical principal in a simple, convenient and practical shape—in other words he wants a "Hardie"

The growth of the Hardie Spray Pump business, due to the extreme reliability of the pump, is growing by leaps and bounds. The demand from Canada alone, is sufficient to warrant the erection of a factory at Windsor, to take care of this territory.

SEED BUYING.

As THIS is about the time when farmers and gardeners begin planning about their crops for the coming season, and laying in their seeds, the following table may be of general service:

RELIABLE TABLE SHOWING THE QUANTITY OF SEED USUALLY SOWN UPON AN ACRE.

	lbs.	bush.
Barley, Broadcast	48	2 to 3 bush.
Beans, dwarf, in drills	60	1½ bush.
Beans, pole, in hills	60	10 to 12 qts.
Beets, table, in drills		6 lbs.
Beets, Mangel-Wurzel		5 lbs.
Buckwheat	48	1 bush.
Cabbage in beds to transplant		¼ lb.
Carrot, in drills		3 to 4 lbs.
Clover, red	60	20 lbs.
Clover, white	60	12 to 15 lbs.
Clover, Alsike	60	10 lbs.
Clover, Lucerne or Alfalfa	60	20 lbs.
Corn, in hills		8 to 10 qts.
Corn, for fodder	56	3 bush.
Cucumber, in hills		2 lbs.
Flax, broadcast	56	1½ bush.
Grass, Kentucky blue	14	3 bush.
Grass, orchard	14	3 bush.
Grass, English rye	24	3 bush.
Grass, red-top	14	3 bush.
Grass, timothy	48	½ bush.
Grass, Hungarian	48	1 bush.
Grass, lawn	15	4 bush.
Melon, musk, in hills		2 to 3 lbs.
Melon, water, in hills		4 to 5 lbs.
Millet	48	1 bush.
Oats, broadcast	34	2 to 3 bush.
Onion, in drills		6 to 8 lbs.
Onion, for sets, in drills		50 lbs.
Onion sets, in drills		6 to 12 bush.
Parsnip, in drills		4 to 6 lbs.
Peas, round, in drills	60	1½ bush.
Peas, wrinkled, in drills	60	1¼ bush.
Peas, broadcast		3 bush.
Potatoes, cut tubers	60	8 bush.
Pumpkins, in hills		3 lbs.
Radish, in drills		8 to 10 lbs.
Rye, broadcast	56	1½ to 2 bush.
Spinach, in drills		15 lbs,
Squash, bush varieties, in hills		4 lbs.
Squash, running varieties, in hills		3 lbs.
Tomato, to transplant		¼ lb.
Turnip, in drills		2 lbs.
Turnip, broadcast		2 lbs.
Vetches, broadcast		2 to 3 bush.
Wheat, broadcast	60	1¼ to 2 bush.

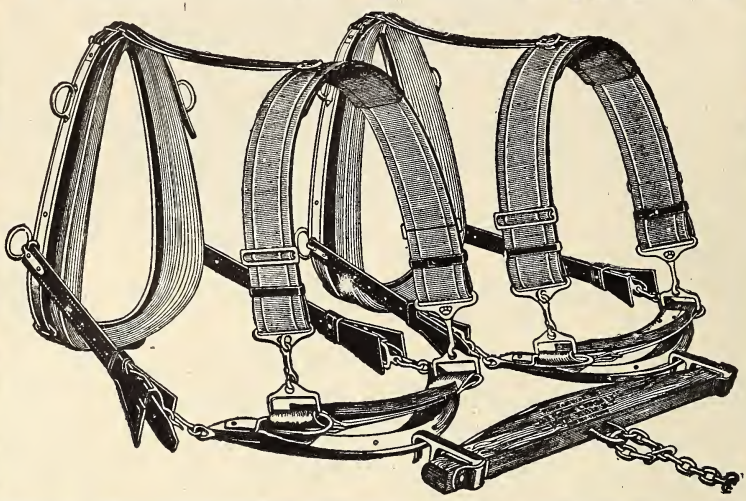
QUANTITY OF SEED REQUIRED FOR SPECIFIED LENGTH OF DRILL.

Asparagus	1 oz. for 60 ft. of drill.
Beet	1 oz. for 50 ft. of drill.
Beans, dwarf	1 qt. for 100 ft. of drill.
Beans, pole	1 qt. for 150 hills.
Carrot	1 oz. for 150 ft. of drill.
Cucumber	1 oz. for 50 hills.
Corn	1 qt. for 200 hills.
Leek	1 oz. for 100 ft. of drill.
Melon, water	1 oz. for 30 hills.
Melon, Mask	1 oz. for 50 hills
Onion	1 oz. for 100 ft. of drill.
Onion sets, small	1 qt. for 40 ft. of drill.
Parsley	1 oz. for 125 ft. of drill.
Parsnip	1 oz. for 150 ft. of drill.
Peas	1 qt. for 100 ft. of drill.
Pumpkin	1 oz. for 40 hills.
Radish	1 oz. for 75 ft. of drill.
Salsify	1 oz. for 70 ft. of drill.
Spinach	1 oz. for 75 ft. of drill.
Squash, early	1 oz. for 50 hills.
Squash, marrow	1 oz. for 20 hills.
Turnip	1 oz. for 150 ft. of drill.
Cabbage	1 oz. for 2000 plants.
Cauliflower	1 oz. for 2000 plants.
Celery	1 oz. for 3000 plants.
Lettuce	1 oz. for 3000 plants.
Pepper	1 oz. for 1000 plants.
Tomato	1 oz. for 1500 plants.

VITALITY OF SEEDS.

	Years.		Years.
Artichoke	5 to 6	Parsley	2 to 3
Asparagus	2 to 3	Parsnips	2 to 3
Beans, all kinds	2 to 3	Pea	5 to 6
Beet	2 to 3	Pumpkin	8 to 10
Broccoli	5 to 6	Rhubarb	3 to 4
Carrot	3 to 4	Squash	8 to 10
Cress	3 to 4	Lettuce	3 to 4
Corn kept on the cob	2 to 3	Melon	8 to 10
Cucumber	8 to 10	Mustard	3 to 4
Egg plant	1 to 2	Okra	3 to 4
Endive	5 to 6	Spinach	3 to 4
Leek	2 to 3	Tomato	2 to 3
Cauliflower	5 to 6	Turnip	5 to 6
Celery	2 to 3	Pepper	2 to 3
Chervil	2 to 3	Radish	4 to 5
Corn salad	2 to 3	Salsify	2 to 3
Onion	2 to 3	Lavender	2 to 3

BAKER'S
TRACELESS HARNESS



No Whiffletrees—No Traces

This harness is indispensable to every fruit grower—vineyardist or orchardist. Saves time, labor and patience. Pays for itself many times over every season in the saving of injury to trees and vines and damage to growing fruit, which always occurs from the use of ordinary whiffletrees and traces. One of the handiest of farm equipments.

We have hundreds of testimonials from every State, like the following:

Charlotte, N. Y., Dec. 6th, 1902.

B. F. BAKER COMPANY, Burnt Hills, N. Y.:

Gentlemen,—In reply to yours of the 2nd inst., I would say that the harness I bought of you this year gave splendid satisfaction. I think it paid for itself in one day's work in a five acre block of peach trees I have that are headed very low. I have over sixty acres of orchard and I have used it a great deal this summer, with a great saving to men, horses harness and trees. Wishing you success, I remain, sincerely yours, FRANK E. YARKER.

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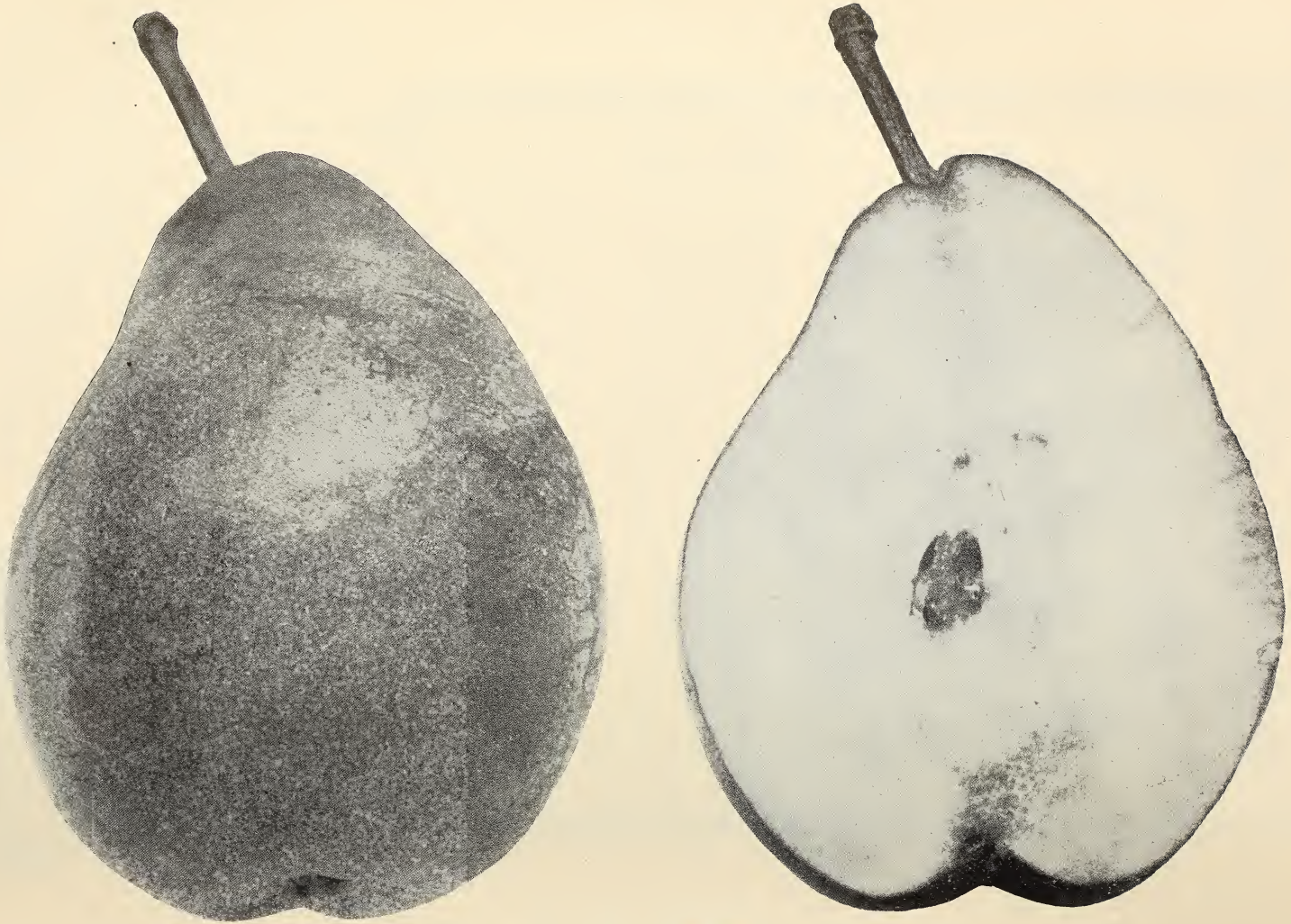

Fig. 2564. Pilmaston.

THE
CANADIAN HORTICULTURIST

APRIL, 1903

VOLUME XXVI NUMBER 4

PITMASTON

(PITMASTON DUCHESSE D'ANGOULEME)

THIS is a pear which has succeeded so well in our own orchard at Grimsby that we are anxious to see it tested in all parts of Ontario where dwarf pears will flourish.

ORIGIN: Raised by the late Mr. Williams, of Pitmaston, near Worcester, England, from crossing Duchesse d'Angouleme with Glout Morceau, and originally known as Pitmaston Duchesse d'Angouleme.

TREE: Vigorous, productive, and suited to pyramidal training.

FRUIT: Very large and handsome, sometimes 4¼ inches long by 2¾ inches wide; skin, smooth, fine; color, pale lemon, thickly covered with patches of delicate cinnamon colored russet; stem, one inch long, stout, and inserted either level or in a small narrow basin; calyx large and open, set in a wide cavity.

FLESH: Tender, melting, and very juicy; flavor, very rich, vinous, perfumed.

QUALITY: Very good.

VALUE: First-class for distant shipment.

SEASON: October and November.

REPORTS OF PITMASTON.

DR. ROBERT HOGG, Vice-President of the Royal Horticultural Society, London, England: "A very handsome pear of the finest quality; in use from October till the end of November. Fruit too large to be grown as a standard."

MR. R. D. BLACKMORE, of Teddington, England: "It is good, but not of the first quality; much better than Glout Morceau or Duchess, but worthless on a wall."

THE DWARF PEAR ORCHARD.

Mr. Wm. Armstrong, Barrie, Ont., writes as follows:

SIR,—I am thinking about planting some dwarf pears, such as Bartlett, Duchess and Clapp's Favorite. What about the Dempsey? Also about some Japan plums, Red June or Burbank.

I have good strong clay soil, and rich. What would your choice be out of the above pears, and what would you advise me to plant. All for home markets

In planting an orchard of dwarf pears for the home markets, one should seek to cover the season so as to keep up successive shipments.

The very earliest pear is the Doyenne d'Ete, a small but delicious dessert variety, the Seckel of its season, which is about the last of July.

The Chambers follows very closely, and is, in our opinion, most promising for profit. Some years ago we planted two trees in our experimental plot, and these have proved regular and abundant bearers. The fruit is of medium size, yellow, with a pretty shading of red, and the flesh sweet, tender, and of fair quality. So far we do not know that it has a place in Canadian pear orchards, for no one seems to be acquainted with it. It is of American origin, having been brought from Maryland to Kentucky by Judge Chambers, where it was counted very profitable as a market variety.

Then about the middle of August comes Giffard, a French pear of most agreeable flavor and white melting flesh. On our deep rich sandy loam at Maplehurst this pear grows much above medium size, and its markings of red on yellow ground make it a very attractive pear in the market basket. Mr. M. Pettit, of Winona, makes it one of his principal commercial varieties.

Clapp's Favorite follows toward the end of August. A large, beautiful pear, yellow, wtih rich markings of fawn and crimson, and excellent in quality, if gathered before it becomes mealy. It should not be omitted in planting for the home market.

Of the well known favorite, the Bartlett, we need scarcely speak. It comes next in order, covering the season from the end of August to the middle of September, and it is recognized as our leading market variety; but it is a standard tree and does not succeed so well as a dwarf.

Louise follows in the end of September, a beautiful pear when grown in rich soil. It is large, pale green, with a brownish red cheek, and of very good quality. This and the Duchess, which is an October pear of very large size, greenish yellow in color, and of excellent quality, about complete the usual list of profitable dwarf pears for our Canadian markets.

Of late, however, our attention has been called to two exceptionally fine varieties of dwarf pears in our experimental plot at Grimsby, viz., Hoosic, a large beautiful yellow pear, of rich, aromatic flavor, and very good quality, ripening in October; and PITMASTON, which we show in our frontispiece, and which is described in report of our fruit stations for 1902. It is an English pear, raised in Pitmaston, England, where it was called Pitmaston Duchess d'Angouleme, a name certainly clumsy enough to bring it ill favor, no matter how great its excellence. Its great size surprised us last autumn, and it appeared to us freer from knots and to grow more regular in form than the Duchess. The tree, too, is productive, and a fine vigorous grower. It is perhaps too soon yet for us to recommend this variety as superior to the Duchess for the dwarf pear orchard, but we are greatly pleased with it so far, and believe it would be one of our best export varieties. Possibly for our home markets its green color may count against it. It is later than the Duchess, keeping well into November.

Editorial Notes and Comments

HOW TO MAKE FRUIT GROWING PAY.

ANOTHER successful house meeting of the Grimsby Horticultural Society was held on Saturday evening, February 28th, at the house of Mr. J. M. Metcalfe, and was well attended by both ladies and gentlemen.

Both village and country people were attracted, not only by the social character of the gathering, but also because the fruit growers were anxious to hear what a practical man like Mr. E. D. Smith, of Winona, M. P. for Wentworth, had to say on how to make their business pay; and because the village people were anxious to hear a paper on Roses by the Honorary President, Mrs. E. J. Palmer. Besides these subjects, excellent music on violin, 'cello and piano was contributed by the Misses Metcalfe and Mrs. J. M. Metcalfe.

These monthly meetings are so interesting that they are likely to be a regular feature in the future work of the society.

CHOICE OF VARIETIES.

IN his opening remarks Mr. Smith emphasized the great importance of kinds of fruit for profit. The time has passed when all apples bring the same price, or when it matters little about the season of a peach. We have new varieties of peaches to cover the season, and some of the newest varieties pay so much better than the old, that in some cases the latter are but an encumbrance of the ground. The Yellow St. John, for example, has not only filled a gap just in advance of the Early Crawford, but it is so good a variety that it is to-day one of the most profitable kinds to grow for Canadian markets.

The beginner, therefore, in buying an orchard, should study the varieties in it, and if any are undesirable he should bear in mind that they must either be rooted out or top grafted, and this expense must be considered.

PROPER SOIL AND LOCATION.

IN buying a fruit farm an important consideration is the soil conditions in relation to the fruits to be grown. The most signal blunders are often made in this way, resulting in failure and disappointment. Mr. Smith pointed this out most clearly, and thought a few hundred dollars additional to secure right soil should not be considered when making a purchase.

Location was important with respect to markets. Mr. Smith's practice is to sell all fruit f. o. b., and in this he spoke in line with the advice given in these pages. He condemned the custom of shipping everything to the commission merchant, who often takes the kernel and returns the husks.

The secret of success in fruit growing is to *grow a choice article* and then sell it for its value, and the fruit grower should do this himself and have something to say about the price. There is no trouble selling a really choice article in any market by direct sale.

FERTILE SOIL AND MOISTURE.

THESE are two essentials to success in fruit growing, and Mr. Smith pointed out how important the latter is in a dry season, such as often prevails with us. Cultivation for the retention of moisture was a good practice, and in no section had growers more faithfully observed it than in the Niagara District. But through their faith in cultivation as a panacea, the growers were forget-

ting that *humus* was needed also in the soil to help retain moisture. The easiest and cheapest way to furnish humus was by plowing under green crops in the spring, such as rye or clover. Cover crops served three purposes: (1) The supply of nitrogenous matter, (2) the winter protection of tree roots, and (3) the addition of fertility.

What cover crop would you advise? was asked.

Mr. Smith favored crimson clover for the Niagara District, sown in July. The hairy vetch seed takes easier and covers the ground well, but is rather expensive. Peas are good, only that they die in the fall, and consequently lack in the winter protection. Cow peas are excellent also for adding fertility, but they also die in the fall.

Cover crops should be plowed under as early in the spring as possible, else they rob the soil of its moisture.

Is it costly to adopt this practice?

On the other hand, it is economical. It really only leaves ten weeks for cultivation, say from the first of May until the middle of July, for at the latter date the ground is seeded down until the following spring.

PRUNING PEACHES AND PLUMS.

PRACTICALLY the same advice was given on this subject as we have so often advocated in these pages. Mr. Smith advocated close and careful pruning; he would treat a tree on the same principle as a grape vine, aiming at leaving only as much bearing wood as the tree should carry; in this way also, thinning of the fruit itself would be unnecessary.

He would not plant too closely. He thought 18 or 20 feet apart not too far, because in such case the tree would extend over more area and yield more fruit. As an illustration, he instanced a Quackenbos plum tree at Mr. W. M. Orr's place at Fruitland, which was given plenty of area and had reached a fine size. More than once this one tree had yielded thirty baskets of fruit.

THINNING FRUIT.

MR. E. D. Smith fully endorsed the advice so often given in this journal about thinning fruit, especially in the case of over-loaded trees of peaches. For example, in an orchard of eighty Triumph trees, four years old, he had a very thrifty growth. The trees were overloaded with fruit, but he left them hanging until after the "June drop," which thinned them considerably. Still there were about one thousand peaches on each tree. Now, 80-three-layer (or two-inch) peaches would fill a twelve-quart basket, and five baskets of fruit was a full crop for a four-year-old peach tree. He therefore, for the sake of experiment, selected two trees as nearly alike as possible, leaving one unthinned, and reducing the number of peaches on the other from 1,000 to about 400. Off this tree he sold four baskets No. 1 peaches at 60 cents each, and one basket of No. 2 at 40 cents, making the total proceeds from the thinned tree $2.80.

From the unthinned tree he took seven baskets of fruit, but it was useless stuff that did not sell for enough to pay cost of handling and baskets. Besides, the limbs were broken down and split by the over crop, and the tree itself so stunted that it was at least three years in recovering itself.

What did the thinning cost you?

The expense was no more than it would be to pick them later when more mature. They must be picked anyway. I estimated that it would cost about one cent a basket, or five cents a tree to do the work; but, by judicious pruning a great deal of this work of thinning would be avoided.

When would you spray, if you could only spray once?

Just before the buds open, was the response, with Bordeaux, or possibly with the

lime and sulphur spray. To prevent curl leaf and cherry aphis use whale oil soap.

GOOD SHIPPING VARIETIES BEST TO PLANT.

THE great Northwest, as a future market for Ontario fruit, has often been discussed in these columns. The great difficulty lies in the soft nature of our peaches and plums, and not in the packing. Winnipeg papers praise California packing and abuse Ontario, not understanding that fruit grown in a dry climate will carry very much farther than the same grown in a wet climate.

Mr. Smith's advice was that we plant with a special view to this great market, selecting only such varieties as will carry. Of the hundreds of kinds, of course only a few will suit our purpose, but these few are the ones to select. For example, in peaches we have Elberta and Smock. Both of these will carry, but the latter is rather too late and comes in when the demand for peaches is about over.

In plums, the Purple Egg, Reine Claude and Satsuma are good shippers. So is Damson, and there is quite a good demand for this little plum both in Ontario and in Manitoba.

Grapes carry very well, but the tougher skinned ones carry best.

Name some varieties of grapes which you would recommend for distant markets.

On deep rich soil, Agawam and Vergennes; on light land, Rogers 4; on heavy land, Lindley, Rogers 43 and Rogers 44.

"I think," said Mr. Smith, "there should be a lot of special work done in experimenting with varieties especially adapted for distant shipments," and we took note of this as a hint to our Ontario fruit stations.

What about Concord and Niagara?

For ordinary land no grape will give surer returns than the Concord; but for Niagara you must have good rich soil, and then it will give excellent returns.

BLACK KNOT AND CHERRY BIRDS.

SIR,—In this section of country, on account of the black knot, the growing of cherries is almost a thing of the past, and what few cherry trees are growing are so infested with birds that it is nigh impossible to get any cherries off them. One man grows a few and protects them from the birds with a wire netting. I grew the Belle Magnifique some years ago, and it was nearly exempt from the ravages of the birds. I attributed this to its lateness of ripening and being of an acid taste. Now, I want to know what varieties of cherries are exempt, or perhaps I would be more correct in saying less liable to be attacked by birds; and are cherries which ripen late, say the end of July, or the beginning of August, less liable (on account of other bird food being more plentiful), than the early ripening ones.

Wellburn. JOHN MCAINSH.

Where black knot is not destroyed it will spread rapidly and completely clear out the plums and sour cherries from an infected district. We have found, however, that it is very easy of control, for it spreads from spores from the growing knots, of which there are two sorts—a winter and a summer spore. By keeping a close watch upon our trees and cutting off and burning all knots, or by painting with kerosene those knots which cannot be removed without great injury to the tree, we have cleared out the knot from our orchard, and now very seldom meet with it. As for cherry birds, we are not troubled much with them except among a few varieties. The most subject, we think, is Early Purple, for unless we are on hand very early in the morning the cherry bird takes the whole crop. This is the first cherry to ripen, and its flesh is sweet and tender. Several other soft-fleshed cherries, with tender skin, such as Black Tartarian, Elton and Black Eagle, are favorite cherries with the birds; but the firm-fleshed varieties, such as Napoleon, Yellow Spanish, Elkhorn, Windsor, and the Pie and Morello cherries, are not much troubled with them.

POINTERS ON STRAWBERRY CULTIVATION.

A short time ago we received a letter from a subscribed in Toronto as follows:

SIR,—Could you give me any information (or put me in the way of getting it), relative to the cultivation of the strawberry and other small fruits for the market. Some article or work, if not expensive, that would tell how a man should start so as to make a successs.

It does seem as if everything had been said already on this subject, but we are glad our subscribers ask questions, for this is the only way we can know what to write about. Now, instead of giving our own methods, suppose we tell our readers some of the methods adopted by others, for we recently listened to Mr. W. F. Kydd, of Simcoe, addressing the farmers at Grafton on "How to Grow Strawberries," and to Mr. F. G. Tice, of Oswego, N. Y., addressing the fruit growers at Rochester upon the same topic.

SOIL.

Our own experience in light sand has been a failure, because it dries out just as the berries need moisture for their maturity. Tice claimed he had exactly the ideal soil to grow big crops at Oswego, N. Y. It was formerly a wet, cold soil, but now thoroughly underdrained so that there was no standing water. This soil gives moisture in fruiting season when it is most needed.

PLANTING.

Tice would mark out his ground with a hand drawn marker, consisting of a board of 3-8 inch stuff, 12 feet long, with little sleigh runners 2½ feet apart, with which the land is marked two ways, leaving it in checks of squares. The plants are set at the intersections, and tht first cultivation may be done two ways, thus reducing the hoeing as much as possible. Then after the runners became numerous, he trains them to make narrow rows in one direction and cultivates only one way.

His plan for setting seemed a good one. A man carries basket of plants with cover on his back, and with a spade opens the ground; a boy takes out a plant and throws it in, and the man packs the earth about the plant with his foot. This is a far quicker method than is usually given in the books.

CULTIVATION.

Terry says in his book: "There is just one secret about taking care of a strawberry patch easily, and that is, never let any weeds see daylight. It is cheaper to hoe three times than once, and pleasanter too."

Tice advised very shallow cultivation—stirring the ground not more than one inch in depth. Then use a wide hoe with a narrow blade for hand work. The first runners are the strongest and make the best plants, so they should be encouraged until, about the first of September, you have a row about six or seven inches wide. It is foolish to have it wider, for it is on the outside plants that the greater part of the fruit is borne.

After fruiting season Tice sows barley between the rows; this keeps down the weeds, and as winter approaches it affords a protection to the plants. In the fall, mulching is an essential. Terry uses wheat straw; but if mice are abundant advises cut straw one inch deep.

SORTING.

Tice employs women to sort out the fancy berries, leaving no small green or imperfect berries in the first-class grade. In this way he has gained a high reputation for his No. 1 berries. Every basket of this grade is wrapped in thin white paper, through which the beautiful fruit shows its color. This pays, both for beauty of appearance and because the fruit keeps longer and retains its color better. Marshall and Brandywine, thus protected, keep their bright fresh look, and so does even the Clyde, the Ben Davis of strawberries.

FRUIT AND FLOWER EXHIBITS AT FAIRS.

AT the meeting in Toronto of the Canadian Association of Fall Fairs and Exhibitions, Mr. T. H. Race, of Mitchell, criticised the present methods of exhibiting fruit adopted by our fall fairs. The great object of a fair was, in his opinion, the education of the public along certain lines. This object was largely defeated in the case of fruit when signs were put up of "Hands off," and a bar built alongside preventing people from coming near the exhibit. In some cases wire netting was added, still further defeating the object in view in making the exhibit. To learn the most from the fruit exhibit, the people should be allowed to come near and even to handle the fruit.

"They would steal it," said one. *"They would eat it all up,"* said another.

"No, they would not," said Mr. Race, and he instanced the case of the London fair, where the fruit was set out on tables not too wide, without protection, and after a trial of four years no complaint was made and no fruit was stolen. People should be allowed to examine the fruit if they wanted to. It was shown for people to see and study its characteristics, and after it was judged why should they not be allowed to do so.

EXPERT JUDGES IN FRUIT ARE NEEDED.

There are many testimonials to the excellent satisfaction given by the expert judges who had been sent out by the superintendent, Mr. G. C. Creelman, during the past year, to judge horses, cattle and sheep and swine, and a resolution was passed asking that expert judges in fruit and poultry be also sent out.

How do you select expert judges? asked some one.

Such men are few and hard to find, said Mr. Creelman, but we ask the various associations to name their best men, and from these we make our selections. Each judge is instructed to attempt nothing outside of his specialty.

What is the cost to the Fair boards? asked another.

Five dollars a day for each judge, was the reply. The total cost, including traveling expenses, is about $10 a day, of which the department pays one half.

All seemed to agree that this arrangement was most liberal and satisfactory, and that one expert judge, who was not acquainted with the exhibitors, was worth far more than three judges, as ordinarily chosen.

THE JUDGE SHOULD BE AN EDUCATOR.

Mr. Race would not have the people excluded while the judging of fruit was in progress. They should be present to see the scoring of the varieties, and the judge should be prepared to give his reasons for every award, a course which would be both educative and in most cases satisfactory. Prizes ought not to be awarded to a collection simply for its number. Every scrub apple added, in his opinion, lessened the value of the collection, and detracted from instead of adding to its value. A collection for home use should be selected to cover the season, as well as embrace kinds of best quality.

ATTRACTIONS.

Mr. F. W. Hudson, of the Department of Agriculture, Ottawa, in the course of a most excellent and comprehensive address, pointed out the importance of the selection of a secretary, who should be constituted managing director and be paid to give certain office hours to the work; and of having the directors each represent a section whether of fruit, poultry, horses, etc.

Among the attractions he would have school children's exhibits of collections, seeds and plants; Caledonian games; horseback riding; and many other features, barring always the horse race, which injured a fair more than it helped. Mr. Race would have

the horticultural societies take a special interest in the horticultural exhibit, and make it as decorative as possible. In no way could they do this better than by encouraging the school children's exhibits. Plants and seeds might be distributed in spring time to the schools and special prizes offered for the best exhibits made in autumn. Nothing would interest the community more than the children's competition.

Mr. H. B. Cowan, of Ottawa, strongly supported this latter department of work, instancing the recent model fair in Carleton county, at which the school children's collections of weeds, insects, seeds, flowers, etc., formed the most interesting feature of the whole fair.

The Model Kitchen was another most interesting feature of the Carleton county fair, with a competent woman to give a lecture and a cooking demonstration. Another was the athletic contest, which was made the occasion of competition for the county league championship.

OWEN'S PROCESS.

IT is strange how many nostrums are being offered to our farmers and fruit growers in order to get their money. Mr. G. W. R. Rennie, gardener for the Asylum for the Insane, London, encloses to us a circular in which the above process is said to be a discovery of immense practical value in protecting fruit trees against insects and fungi. What the process is remains a deep mystery, nor does the circular say for which of the many fungus diseases it is effective, nor how it can reach the insects. Owen's process, the circular reads, consists of administering into the growing tree certain ingredients which the inventor has proved to be effective for the purpose above mentioned. Under the head of "How it Operates," we read as follows:

"Water within the tree, containing acid, carbon-dioxide, etc., dissolves and takes up in solution the ingredients discovered by the inventor (when applied according to his process), by means of the natural process in tree and plant life known as osmosis in conjunction with the processes commonly known as root pressure and leaf transpiration, and these ingredients are, by the circulatory system of the wood cells, etc., absorbed, and, by filtration, carried in solution throughout the entire tree and into the foliage thereof, into which it is easily traced." And under the head of "What it Does," we read that it prevents damage by, and destroys, the insect pests and fungous growths injurious to the tree. It protects the trees and fruit against damage by borers, codling moths, caterpillars, San Jose scale, black knot, leafcurl, yellows, scab, and other insect, parasite and fungous enemies to trees."

Mr. Rennie wants to know if this "process" is either reasonable or practicable. A simple word of two letters, viz., *No,* is perhaps reply enough. The plan reminds us of the old one of boring a hole in the tree and filling it with sulphur to cure black knot; or the old remedy among our boy companions of stooping down and spitting under a stone to cure side ache.

NEW YORK STATE FRUIT GROWERS.

WHILE our Ontario Association has the largest membership of any horticultural society in the world, owing largely to its monthly journal, which is a bond of union between the various smaller organizations and a means of communication between the individual members, the Western New York Horticultural Society has the largest meetings. They are always held in Rochester, the fruit centre of the state, and toward the end of January, when fruit growers have the most leisure. The first president was Mr. Patrick Barry, founder of the Ellwanger & Barry nurseries,

Fig. 2565. Mr. Barry.

and since his decease Mr. W. C. Barry has ably filled the honored position.

THE FRUIT EXHIBIT.

A basement was devoted to the fruit display, which was creditable in some points, but scarcely equalled our own at Walkerton. The leading pear exhibit was as usual by Messrs. Ellwanger & Barry, and their Anjou pear was really the only one that showed up as being very desirable as a market variety. It is truly a magnificent pear, and we have found it one of the best for export, but not very productive as a dwarf; besides it drops early.

EXPORT PEARS.

"The Duchess is my favorite pear," said Mr. McNeil, our chief inspector, who was looking over the exhibit with us. "I have an orchard of five hundred trees, and I intend to set five hundred more of the same variety in the spring." We remarked that it was an excellent export pear, but often sold very low in our home markets. "I know it," said Mr. McNeil, "but I intend to plant nothing more for home markets. I want to plant for export only, and for that it is first-class." We mentioned Pitmaston as promising, especially for long shipment, for as grown at Maplehurst it is very large and desirable in appearance, and it is firm enough to hold up in ordinary storage. "That is at present the first consideration with us in Ontario," said Mr. MeNeill, "and until we get proper storage from start to finish we must make shipping quality the first consideration in planting. We can never unite with this the highest quality for dessert, because delicacy of texture and juiciness go with high flavor. So it is useless trying to get varieties to combine high quality and firmness. We should rather aim at a better system of cold storage, so that we can ship our tender, delicious Crawford peaches and similar high class fruits to distant markets. As it is, they are spoiled before they reach the steamer by hot packing houses and hot cars."

"There is a pear," said Mr. John Charlton, of Rochester, "the Barry, which will carry any distance, but the trouble is it will never ripen after it is picked." We thought it too bad it should carry so good a name as that of Mr. Barry, and wondered if it was given it to help its sale.

YORK IMPERIAL APPLE.

The question was asked at Rochester, How many have tested the York Imperial? Out of all the 500 fruit growers, no one replied except Prof. Beach, of Geneva, who reported having it at the station grounds, and that he was disappointed in it. It was small and not highly colored, and he doubted whether it was adapted to New York State.

BETTER PRICES FOR HIGH GRADE FRUIT.

The subject of packing and grading was treated in an excellent address by Mr. McNeill, of Ottawa. He made a good point

when he stated that the present need was rather the growing of more high grade fruit than the packing of it. This would not come about until the grower saw a greater difference in price between the grades. It was a shame to see fine King apples sold for the same price as Ben Davis, and a shame to see such poor samples of all kinds exported. Fruit growers will not grow high grade fruit for mere sentiment; but, when men see that high grade fruit pays in dollars and cents, and that poor stuff does not pay —and that day is at hand—then they can no longer afford to grow poor samples, nor to mix them in the same packages with high grade stock.

THE APPLE ROT OF 1902.

Mr. H. J. Eustace, of Geneva, N. Y., reported an apple scab and the white fungus that accompanied it on apples last year, and which caused the rot of so large a portion of the crop in New York State and in Ontario.

The scab appeared in August and September, unusually late, owing to the wet autumn; and the white fungus was quite distinct from it, and could not have found an entrance through the skin had not the scab first made an opening. This white fungus has been known for fifty or sixty years as attacking dead wood and rotten fruit, but never was so injurious to fruit as in 1902, and is not likely to be so troublesome again unless in a peculiar season like the one just passed. The remedy, of course, is spraying, for this prevents the scab, and without the scab the white fungus would be harmless.

COLD CHECKS SCAB.

Mr. Eustace further reported on experiments with scab in cold storage. He had put away apples inoculated with scab fungus in a temperature of 32F, and others in a temperature of 70 degrees. The latter soon developed scab at the point of infection, while the former did not show it all the time they were kept in the cold, but when brought to a high temperature the fungus appeared in the course of time. Scabby apples, therefore, can be kept without depreciation below 45 F.; but for the best results the storage should be dry and well ventilated. Mr. Eustace believed that the spores of scab might be spread to trees from apples on the ground, and these therefore should be plowed under or otherwise disposed of; though, of course, a thorough covering of Bordeaux would secure the trees from infection.

Some growers reported good results from spraying with lime and sulphur, both for scale and fungi, and one stated that he had treated his apple orchard with a fine spray of pure kerosene in the month of February, without the least injury, and he believed ht had destroyed both scale and scab.

GRAPE LEAF HOPPER.

This insect, commonly called thrip, is a near relative of the rose leaf hopper, and very difficult to destroy. Prof. Slingerland, of Ithaca, N.Y., had tried blankets of tangle foot, against which the hoppers were driven and caught fast, but this plan, though fairly successful, was too costly. He had tried spraying with kerosene, but grape foliage was too tender, and would not take more than 5 or 6 per cent of kerosene, so this was a failure, but he hoped for some success with whale oil soap, 1 lb. to 10 gallons, applied about the 1st of July. It would kill every one it hit, and a return spraying to kill those which fell to the ground might make the work pretty thorough.

YELLOWS OF THE RASPBERRY.

This evil has appeared in Mr. Metcalfe's plantation at Grimsby and in other places in Ontario, and we have failed thus far to meet anyone who can explain it. Prof. Stewart,

of Geneva, had met with it along the Hudson, where the Marlboro was so badly affected with it and with cane blight that this variety was being discarded. The yellows attacked both growing and fruiting canes, and rendered the fruit insipid. But so far both cause and remedy is unknown.

RASPBERRY CANE BLIGHT.

"This," said Prof. Stewart, "appears just as the fruit is ripening, and is a very destructive fungus, in some cases reducing the bark and finally kills the canes. Spraying with Bordeaux had not proved of any use, and so far the only advice he could give was to secure healthy plants and to cut out the old canes as soon as the fruit is gathered."

THE APPLE TREE TENT CATERPILLAR.

MR. D. C. CROSBY, of Berwick, N. S., writes: "I enclose you a nest of caterpillar eggs, which, if illustrated and explained, might help us to fight the pest. This nest came off a plum tree, but I find them on apple trees also."

The nest contains the eggs of the Apple Tree Tent Caterpillar, and when the letter reached us the warmth of the room had deceived the tiny little worms into the belief that spring had come, and they began to come out of their egg state and crawl about the letter. These eggs were deposited in July upon the smaller twigs of the fruit trees, in ring-like clusters of, in all, perhaps, two or three hundred. We give the following description of them, with cuts, from Dr. Saunder's excellent work, entitled "Insects Injurious to Fruits," a work that should be in the hand of every fruit grower: The

FIG 2566.

eggs are conical, and about one-twentieth of an inch long, firmly cemented together, and

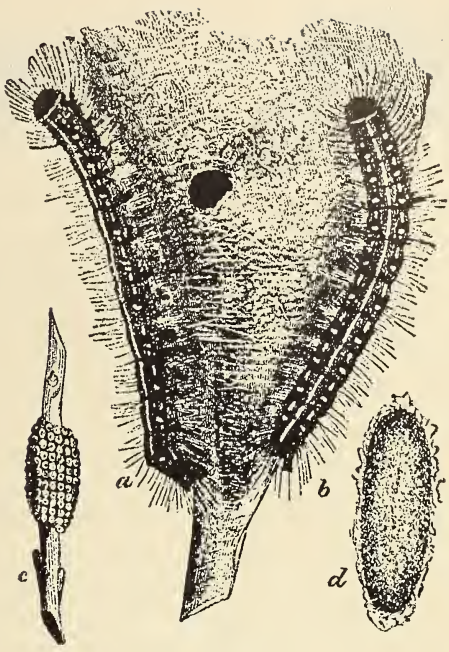

FIG. 2567.

coated with a tough varnish, impervious to rain, the clusters presenting the appearance shown in Fig. 2566. In Fig. 2567, at c, a similar cluster is shown with the gummy covering removed, showing the manner in which the eggs are arranged. The young caterpillars are fully matured in the egg before winter comes, and they remain in this enclosure in a torpid state throughout the cold weather, hatching during the first warm days of spring. They usually appear during the last week in April or early in May, much depending on the prevailing temperature. Their first meal is made of portions of the gummy material with which the egg masses are covered, and with the strength thus gained they proceed at once to work. At this time the buds are bursting, thus providing these young larvae with an abundance of tender food. * * * These larvae are tent makers, and soon after birth they begin to construct for themselves a shelter by extending a sheet of web across the nearest fork of the twig upon which they

FIG. 2568. MALE AND FEMALE MOTH.

were hatched. As they increase in size they construct additional layers of silk over those previously made, attaching them to the neighboring twigs, and leaving between the layers space enough for the caterpillars to pass. * * * In five or six weeks they become full grown, and then measure about an inch and three-quarters in length, and present the appearance shown in Fig. 2567, a and b.

We do not need to continue this extract, as every orchardist must be only too familiar with the way in which these worms strip the foliage off the orchard trees in the month of June.

The practised eye of the fruit grower will readily detect the egg clusters in March or April, when pruning, and a great part of the nests readily destroyed, while a thorough treatment with Paris green will destroy them in summer if not too long delayed. There is another variety known as the Forest Tree Tent Caterpillar, that invades our orchards from forests that border upon our orchards; and with such a breeding place their invasion becomes so serious that their destruction is by no means an easy thing.

BLACK KNOT.

MR. D. C. CROSBY, of Berwick, N. S., writes that many plum trees in the Annapolis Valley, Nova Scotia, are being cut down, being so badly infested with black knot, and for this reason very few new plum orchards are being planted.

Surely there is no need to give up the cultivation of the plum on account of the prevalence of black knot. Neglected, it spreads rapidly, and soon destroys the plum and sour cherry trees; but it is one of the easiest to control of our numerous fungous enemies. All affected parts should be cut out in the fall and burned, and if the knot is found upon a large limb or trunk where the whole cannot be destroyed, it should be cut out and the wound washed with kerosene. Young knots appearing in summer may also be painted with kerosene, colored with red oxide of iron to mark the parts under treatment and give greater consistency to the oil. In Ontario we have a black knot act, compelling the destruction of this fungus, which is more effective, and our Nova Scotia friends should try it, as we have done with such success.

LIME AND SULPHUR SPRAY.

BARRING the inconvenience of preparation, the lime and sulphur spray seems to be the one of our most promising remedies for fungi and scale insects of all kinds. How far it may act in the prevention of apple scab we do not know, but certainly we have considerable testimony to its general usefulness. If only some one particular spray, applied before the busy season, would answer all purposes, no doubt fruit growers would not grumble much at the trouble of its preparation.

Please give me the formula, said a gentleman, who has a fruit farm near Toronto, *and I will try it as early as I can in the spring. I have a large new boiler for heating water for my business, and the boiling would be no trouble. I will give it a good trial and give you the result of my experience.*

In reply we gave him the following formula:

Sulphur, ½ lb.
Lime, 1 pound.
Water, 40 gallons.

The sulphur is first put on with a smaller quantity of water, and brought to a boiling point; then the lime is thrown in, adding more water if necessary to prevent burning. When the lime is slacked more water is

added and the whole boiled for two or three hours. Then add hot water to make the proper proportion and apply while hot. At no time will the mixture work as well as when perfectly fresh.

COST OF APPLICATION.

At Mr. McCardle's place, near St. Catharines, as described on page 500 of our journal for 1902, we found Mr. Fisher preparing this mixture in a dozen kerosene oil barrels, using the steam generated by a threshing machine engine to boil the contents. The cost he estimated at only about 1¼ cents per gallon, or about⅛ the cost of whale oil soap.

GOOD RESULTS.

Prof. Beach, of Geneva, N.Y., gives some evidence in favor of an early spraying with this lime and sulphur wash. He stated at the recent meeting of New York State fruit growers that at the Geneva station last spring 31 large Baldwin apple trees were treated with this spray just when the leaf buds showed the first sign of green, and no further spraying was given them. A few trees of the same variety near them were left untreated, while the 31 treated trees gave a yield of 275 barrels of apples remarkably free from scab. This seemed to prove that one such treatment before the opening of the leaves was more effective than the same treatment at any later period. He thought that this one application should always be given if every other were omitted.

SUCCESS WITH BORDEAUX.

Ordinarily Prof. Beach advised, however, four sprayings with Bordeaux, as follows:

First—Just before leaf buds open.

Second—Before blossoms open.

Third—As blossoms fall.

Fourth—Ten to fourteen days later.

But, as Mr. Race said at Stony Creek, what is the use of prescribing for the farmer more work than he can possibly get done? This spraying is the most troublesome and perplexing work our orchardists have to undertake, and if it were only possible to do with one application. Mr. Race seemed to think they might spray three times, but we think very few will do it and do it thoroughly. Prof. Beach thought the first two sprayings on his list might be combined into one, unless leaf eating insects were numerous, in which case, of course, Paris green or else white arsenic would need to be added.

In case the above sprayings with Bordeaux were to be given, he did not think there was need of the winter treatment. But Mr. Professor, if you can only give us a spring treatment, like that lime and sulphur with which you had such good results, and make it a little easier of application, and tell us that it will be the first and last needed for the whole season you will merit our most sincere gratitude. Every up-to-date fruit grower will take the time to cover every inch of wood, and carry out your instructions to the letter. This is something they will never do as a rule while you make the business so difficult.

Mr. Denny, of New York State, sprayed four times with Bordeaux, giving the last application about the end of June. He had chiefly Baldwins, Greenings and Spy. As a result he had 1,800 barrels of perfectly clean apples out of total crop of 1,950. In his opinion it was the early spraying that did the most good.

SHIPPING TOMATOES—BEST STAGE OF MATURITY—PROPER TEMPERATURE IN STORAGE.

SIR,—I have been shipping tomatoes from Florida to the northern markets during the months of March and April, for the past two seasons, but have not been very successful in the venture. You give 34 degrees as a good temperature at which to carry them, but do not state whether this was for green, half ripe or fully colored fruit.

Elmira Height, N.Y. S. B. CHAPIN, M.I.

We have referred this question to Mr. A. W. Peart, Freeman, who also has been experimenting in forwarding tomatoes to England, and he says:

"In the past three years, during the latter part of September, I have shipped to Glasgow a few boxes of Honor Bright tomatoes. They are medium in size, late, very firm, smooth, of excellent quality, and very productive. They are the most likely export tomato with which I am acquainted. There are four clearly defined stages of maturity, viz., green, waxy white, yellow and red. For export I pick them when yellow, choosing medium size specimens, not too small nor too large, cut them from the vine with scissors, leaving about half an inch of stem adhering. Each tomato is wrapped in tissue paper and packed in excelsior, the same as pears. I use the quarter barrel box, holding about two twelve-quart baskets put up in this way. The first year they sold at 6 shillings a box, the second at 4 shillings, and the third at the same price. At the latter figure I would net about 34 cents per box, or 17 cents per 12-quart basket. According to the advice received from our consignee in Glasgaw, the last lot—shipped in cold storage—reached there in practically the same condition as they left here, that is, unripe. In a few days, however, they would ripen nicely if placed in a dry warm room. All things considered, I have confidence that a fairly profitable export trade may yet be developed in tomatoes."

LABOR ON THE FRUIT FARM.

JUST at the present time there is an unusual scarcity of farm help both in Canada and in the United States, owing in part, no doubt, to the excellent opportunities in the Northwest to become land owners. At a meeting of the Niagara District fruit growers at St. Catharines on Saturday, the 21st of February, a motion by W. H. Bunting was passed which requested the government to do all in their power to encourage the emigration to this country of a desirable class of men.

Considering the great army of unemployed men in Great Britain, and the number of young men of all classes desirous of learning fruit farming, and willing to take instruction as part pay for their work, we have no doubt that by the time the fruit season arrives there will be an abundance of such help as is required to handle the crop.

MARRIED MEN BEST.

As a rule married men are best on the fruit farm, and every fruit farmer needs a cottage for a workingman's family. It may be a nuisance at times to have a lot of children in the neighborhood, but in the fruit season a mother and her boys and girls are a blessing to the fruit grower, for she is the natural foreman of her gang, and responds heartily to liberal dealings.

GROWING APRICOTS.

SIR,—I note in the January number of the Canadian Horticulturist, Mr. Harrison Weir's letter as to the growing of apricots in Canada, and your explanation, which entirely agreed with my own experience at Niagara-on-the-Lake.

Some years ago I planted in a strong clay soil, well under-drained, different varieties, which made good growth, and are now large and healthy trees. They bloom profusely, but so early that frost is sure to affect them more or less, while the "curculio" and rot leave few to mature.

I doubt if apricots will ever be grown with profit in our climate.

Yours truly,

CHARLES HUNTER.

Niagara-on-the-Lake.

TILLAGE FOR THE ORCHARD—III

SPRING AND SUMMER TILLAGE TO CONSERVE MOISTURE.

BY

PROF. J. B. REYNOLDS,

O. A. C., GUELPH.

A NOTED farmer of Ohio, speaking to a gathering of Ontario farmers a few years ago, said: "If I have a sufficient supply of moisture in the soil to begin with, I can make sure of a good crop without summer rains."

There are, for us, three important questions here implied: How much moisture is required for a "sufficient supply," have we that quantity to begin with in the spring, and how may we make sure of a crop without depending upon summer rains?

1. *How much precipitation makes a sufficient moisture supply?*

The answer to this question depends very largely upon the character of the soil, its power to retain moisture, its drainage properties, and the depth to which the subsoil allows the water to penetrate. It depends, also, in part, upon the character of the crop, whether deep or shallow-rooted. But supposing that a well-drained soil is to be saturated to a depth of four feet, it will require, ordinarily, a precipitation for the fall and winter of about twelve inches to accomplish this. Anything more than that amount must be removed by drainage, or penetrate to a greater depth, or if it cannot penetrate, must run off the surface.

2. *Have we in Ontario this sufficient quantity of moisture with which to carry to completion the season's crop?*

Below are diagrams showing the average monthly precipitation for points in Ontario. Montreal, without much error, may be taken to represent the extreme east of Ontario; Ottawa, the middle east; Toronto the middle, and Port Arthur the west. Halifax, N. S., and Prince Albert, Sask., are also shown for the sake of comparison. In these diagrams two items are worthy of consideration: The total annual precipitation at each locality, and the distribution of the precipitation over the year. These items may be represented in figures as follows:

	Inches.	Oct to Mar.	Apr. to Sep.
Port Arthur . .	23.70	30%	70%
Toronto	31.08	51	49
Ottawa.	33.93	46	54
Montreal	40.49	51.5	48.5
Halifax.	57.21	57	43
Prince Albert.	15.06	32	68

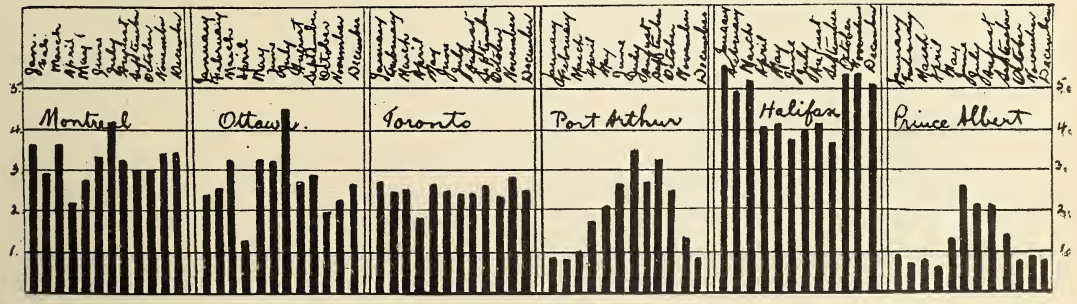

FIG. 2569. DIAGRAM SHOWING NORMAL PRECIPITATION IN INCHES, AT POINTS IN CANADA.

FIG. 2570. DIAGRAM SHOWING NORMAL ANNUAL PRECIPITATION IN INCHES, AT POINTS IN CANADA.

At points in Old Ontario, about 50 per cent. of the total annual precipitation occurred during the inactive season—October to March. At Toronto, 15.82 inches fall during this period, sufficient to supply the 12 inches mentioned above as necessary to saturate to a depth of four feet, and to allow nearly 4 inches for drainage, seepage, and run-off. For Old Ontario, therefore, the point is established that there is a sufficient supply of moisture to begin with. For Port Arthur, as representing the west of New Ontario, the 7.13 inches that fall during the inactive season will saturate the ground only to about a depth of 30 inches. At Halifax there is enough for the purpose mentioned, and over 20 inches to spare. At Prince Albert the precipitation from October to March, 4.85 inches, would saturate the ground only to a depth of about 20 inches, which is quite insufficient. Prince Albert is within the arid, or semi-arid belt of the Canadian Northwest.

In respect of winter precipitation, the conditions that prevail in Old Ontario are by far the most desirable of those above described. To have just enough, and not enough in excess to produce destructive surface washing or to water-log the land, is the most desirable condition. But while we have enough, we have none to waste. We cannot afford to be prodigal of our resources in this respect. The heavens may yield their showers, and the land may be as iron—impenetrable. Unless the surface soil and the subsoil are sufficiently pervious to allow the water to enter, the ground will remain without moisture. It is the business of every farmer and fruit grower, as was shown in the previous article of this series, to prepare the land in the autumn so that it will absorb the maximum amount of water.

3. *How to make sure of a crop without depending upon summer rains.*

If we can thus make sure of a crop, it is a good thing, for the summer rains are uncertain both in quantity and effect. It is a safe position, therefore, to take, that the more nearly we approach this independence the better it will be. And as for the summer rains, we must contrive to make the most of them when they are effective, and, when they are too light to be favorably effective to prevent them from doing harm.

There are four methods by which moisture may escape from the soil:

Seepage and underdrainage.
Surface drainage.
Evaporation into the atmosphere.
Transpiration from the leaves of plants.

In the summer the first two modes operate but rarely, and only in cases of excessive rainfall. But the other two, evaporation and transpiration, are very active. It is the business, therefore, of cultivation to reduce both these modes of loss to the lowest possible quantity. The opportunities for doing this, as represented by the different methods of orchard cultivation now in vogue, will now be considered.

First, it is well known, better known than practised, that a loose covering or mulch upon the soil will check evaporation to a remarkable degree. It is equally well known that land bearing a crop of any kind, grain, grass, roots, or weeds, is usually much drier

than bare land. The moisture has been extracted from the soil by the crop. These are admitted facts, not requiring illustration or proof. What is their bearing upon the methods of cultivation for orchards?

Clean cultivation, as a means of conserving moisture in soils of orchards, is without question the most effectual. This method so clearly and fully meets the requirements above referred to, maintaining a surface mulch upon the soil to check evaporation, and destroying weeds to prevent loss by transpiration, that the matter need not be argued further. Any fruit grower who allows an extra crop to grow in his orchard is, unless there is moisture enough for the proper development of both fruit and the other crop, sacrificing the interests of his orchard. Where a sodded orchard, for instance, is found to be generally more satisfactory than the cultivated orchard, that locality must possess an abundance of rainfall for both purposes. This abundance does not generally prevail in Ontario, and it should be seriously considered, at all fruit sections in Ontario, if clean cultivation is not the most profitable method.

For the year round, and for all purposes relating to moisture, clean cultivation for the summer, and a cover crop sown in the early fall and plowed down in the spring, together make the best method for orchard tillage. The advantages of the combined methods are:

(1) By clean cultivation in the summer the loss of soil moisture, through evaporation and transpiration, may be checked; the moisture present in the soil being thereby saved for developing and maturing the fruit.

(2) Summer cultivation may cease, and the cover crop be sown, earlier or later, according to the season. If it is a wet, cold season, like that of 1902, cultivation should cease and the cover crop should be sown earlier than usual in order to dry out the land, and thus serve a double purpose: to mature the new wood on the trees, and to ripen and color the fruit.

(3) The cover crop, as was mentioned in the previous article of this series, is a protection to the tree roots in the winter, and checks surface washing.

(4) The cover crop, especially if it is a crop that winters over, dries out the land somewhat in the spring and thus allows earlier cultivation. This finally results in the saving of soil moisture.

(5) The cover crop, when plowed down and incorporated with the soil, enriches the soil and improves its texture, and thus eventually increases its power to absorb and to retain moisture.

NUTRITIVE VALUE OF NUTS

IT has been asserted in the scientific journals of Europe, within the past two or three years, on the authority of chemists and dietary experts, that the nutritive properties of nuts entitle them to a much higher price than they now occupy as an article of food. They even assert that if all other means of nutriment were cut off man could support life on the nut crop of the world. This statement has also been made in some of the best school text-books of Europe, and it appears in a school book recently published in this country. The rising generation seems likely, therefore, to have a higher opinion of the utility of nuts than their fathers entertained.—*Sun.*

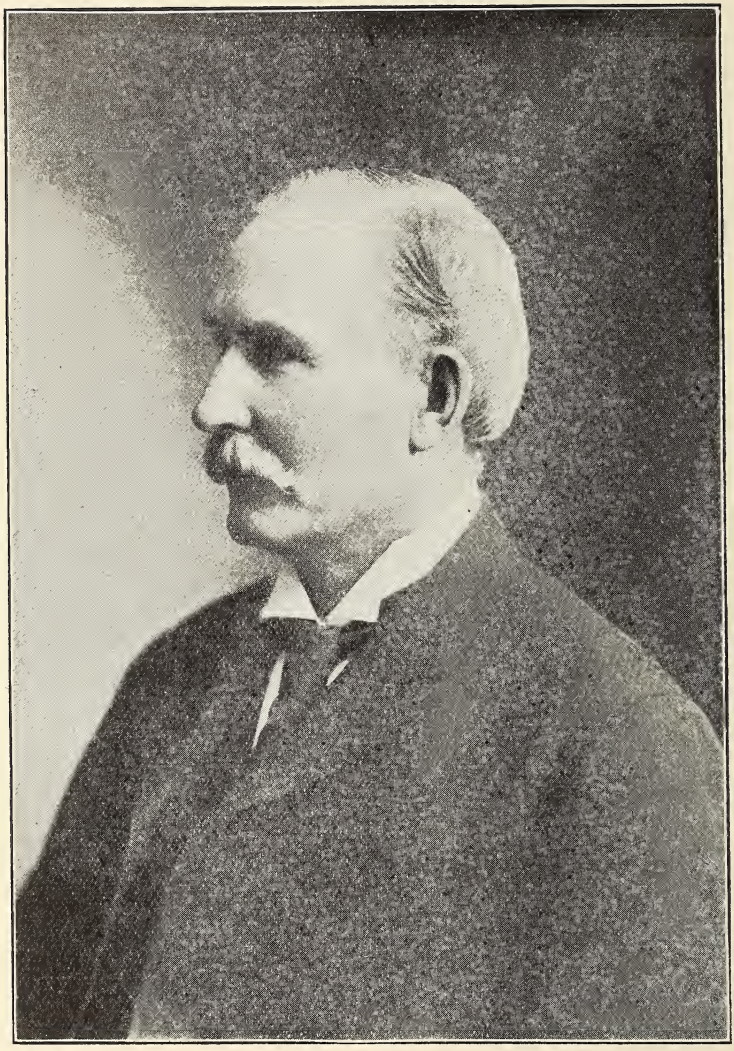

FIG. 2571. HON. JOHN DRYDEN.

MEN WHO HAVE SUCCEEDED—VIII

HON. JOHN DRYDEN.

THIRTEEN YEARS MINISTER OF AGRICULTURE—THE FARMER'S FRIEND—PATRON OF ADVANCED HORTICULTURE—FOUNDER OF THE ONTARIO FRUIT STATIONS AND FRUIT INSTITUTES—A USEFUL CAREER.

HON. JOHN DRYDEN will soon have completed his thirteenth year as Minister of Agriculture for the Province of Ontario. Before being appointed to that office in 1890 he had served his country well, he had done his full share in shaping the agricultural history of his country and had made a magnificent contribution to the welfare of Canada. Though for these forty years past he has been prominent as a breeder and importer of pure bred stock, he has shown such a sympathy with all other lines of our varied agriculture that he has gradually come to be recognized as the most successful Minister of Agriculture that Canada and her provinces have known.

He has taken a deep interest in the fruit growing interests of Ontario, and the Provincial Association and the local horticultural societies have, through all the years of his ministry, found in him a warm friend. The best friends are those who warn as well as advise, those who reprimand as well as praise, those who restrain as well as help. Mr. Dryden has helped our work and at the same time has been honest enough to point out our weaknesses and correct our mistakes. His advice has always been wholesome and frank. His advice has not been mere theory either, for though he does not claim to be a specialist in fruit growing, he is away in advance of the average farmer, having upon his farm at Brooklin, near Whitby, one of the finest apple orchards of Central Ontario, an orchard where the best methods are adopted, conducted on scientific principles, one that is productive.

Of this orchard he is quite proud.

What are the special horticultural works that have been originated and developed under Mr. Dryden's care?

The Horticultural Department, as a separate and distinct branch, was begun some years ago at the Agricultural College by the minister's appointment of Prof. Hutt. Visitors to the college, hundreds of students, and thousands of readers know how this work has grown and spread until now it is one of the strong and influential branches of that important institution. It is no longer necessary for our young men to go to Cornell and other American colleges to get a special training in horticulture. Only last year one of the recent graduates of the college received a voluntary offer to go to Utah to take charge of the State horticultural work. Before Mr. Dryden's regime such a man would not have been available. Mention might be made of many who have settled down in this Province and who are rapidly moving to the front in horticulture.

An extensive system of experimental stations is another of the minister's gifts. We asked for one station and he has given us a dozen; not, it is true, of the nature asked for, but, in his opinion, and in the opinion of many, more serviceable than one elaborate station restricted to one section.

Under Mr. Dryden the fruit growers demonstration school was started, the spraying instructors were sent out. The schoolmaster was sent abroad armed with that new weapon of mystery and ridicule, the spray pump. The work was begun in discourage-

ment and indifference, but gradually it won the approval even of stubborn opponents who looked with political frowns upon such an innovation. The simple way was successful, and we are apt to overlook the fact that the minister's sprayers had so much to do with teaching our people how to do it.

Then came something more mysterious still, and not half the mystery has yet been solved—the mystery of the San Jose scale. The story of its coming was an Arabian Nights Tale; its presence here the mere dream of some entomological enthusiast. Surely no hard headed farmer would listen to such a tale! But Hon. John Dryden is ready to listen and to investigate, and before the fruit men of the Niagara peninsula were awake to the situation the axeman was abroad cutting down and burning trees by the power of an Ontario statute. We all know how opposition and questioning arose here and there, fruitmen would not be convinced of the need of such heroic measures. Public opinion, of course, rules in the making and unmaking of laws, so the strong arm of the law was relaxed, and while the fruit growers were disputing among themselves as to the nature of the new insect it was spreading quietly and insidiously, and soon cast its withering blight over a large area. Many who had doubted and protested now had proof of the wisdom of the minister's activity, and felt that had the vigorous treatment been pushed early the dreaded scale would have been stamped out, or at least confined to a small area. We all know how the minister has for the past three years been assisting the fruit growers in the purchase of material for spraying, and how under his direction the superintendent, Mr. Geo. E. Fisher, has carried out the most extensive and most successful series of experiments in the eastern half of the continent. To this must of course be added the provision for protecting the tree planter by the compulsory fumigation of all nursery stock.

These four items are enough to show how interested Hon. John Dryden has been in horticultural work. Other items might be given. Some of them are just being started, such as Fruit Institutes and expert fruit judges for our fall fairs.

More than once the writer of this paper has heard this statement from a man of scientific training: "The remarkable thing about Mr. Dryden is that a man who received no special training should appreciate so fully the scientific situation and be seized of the importance of somewhat obtruse lines of investigation." Mr. Dryden combines a thorough practical knowledge of Canadian agriculture, a keen appreciation of the value of scientific discoveries, good administrative abilities, a desire to employ only first-class men, and a broad dignified hopeful outlook of the farmers calling.

A word or two now as to the man and his life. His father, James Dryden, came from Sunderland, England, in 1820, being at the time a mere boy in his mother's charge. When coming of age he bought a farm of 200 acres in Ontario county. On this farm John Dryden was born in 1840, and here he has won his reputation as a lover and breeder of fine stock, cattle, horses and sheep. The son added to the farm so that it grew to 420 acres, and the vigorous trees soon suggested the appropriate name, "Maple Shade." Here he has lived his married life, a life of ideal home happiness, and here he and Mrs. Dryden have seen grow up their family of five daughters and one son. The name Dryden will be continued, for, though there is only one son, he has inherited his father's love for live stock, and after a short course at the Agricultural College is managing the farm under his father's direction.

Who could estimate the wealth added to Canada by the importations such as those made by Mr. Dryden. Again and again he has gone to England and to Scotland and

brought home of the best. In 1865 the father purchased a two-year-old Shorthorn from Hon. John Simpson. In 1887 the son bought the entire herd of Edward Cruickshank, of Lethenby. Between these lies a history too long to be told in these pages. The story of the Shorthorn bull, Barmpton Hero, would come in there, and every Shorthorn man of Canada, in fact of the United States, knows what Barmpton Hero was.

The agricultural society, the public school, the township council, the village church, all felt the influence of John Dryden, and he in turn was moulded by them. At last he was chosen in 1879 to represent the constituency in the Legislature, and he has occupied a seat there every year since with the exception of one session.

There may not be much romance in the life of the Hon. Minister of Agriculture, but he has served his country well, he has been honored by his fellow men, he has lived an honorable, straightforward life, and even his political opponents can point to him as an example and an inspiration for the young men of Ontario.—(*Contributed.*)

THE FRUIT GROWERS OF PRINCE EDWARD ISLAND IN ANNUAL CONVENTION.

THE GARDEN PROVINCE HAS A GOOD YEAR AND ITS ASSOCIATION IS FIRMLY FIXED IN THE PEOPLE'S AFFECTIONS—A GREAT GATHERING OF LOCAL AND DOMINION HORTICULTURISTS—FATHER BURKE RE-ELECTED PRESIDENT.

IN the life of Horticultural organizations this appears to be also a growing time. We have just come through our mid-winter meetings, and it will suffice to say that we are proud of them. Certainly, never in the history of our association, has the Fruit Growers' Convention been such an unqualified success. Indeed, as Professor Robertson said, it is hard to recall a convention, in the bigger and more populous provinces, which could compare with ours as to the attendance, the programme, the methods of organization, and the spirit of unanimity which pervaded everything.

The association has received a great impetus from the action of the Federal Government through Prof. Robertson, in sending instructors in all the operations of horticulture here—men who have not only kept up demonstration stations, but, as I ventured to suggest at Cobourg, have gotten into the individual orchards and converted many people who did not know what was the matter with their neglected and fast failing plantations, into active, intelligent and enthusiastic growers of fruit.

The country meetings during the year, some of them addressed by such giants as Professors Robertson and Fletcher, have been much more extended and better sustained than usual, and that stage of reliable up-to-date horticulture fully entered upon.

The exhibitions, too, have sought the co-operation of the association, and, both working together in perfect harmony, have, by the marvellous shows of fruit, worked wonders in the public mind. Commercial men, awakened to the money possibilities of island fruit, are now on the alert. A grand company, with millions behind it, has taken up quarters among us; and jamming, canning, evaporating as well as the purchase of fruit in its raw state for shipment, will, we are assured, be carried on to such an extent as the supply may permit.

Prince Edward Island is 1,000 miles at

least nearer to the British market than Ontario. Its fruit matures later, too. Slow-maturing apples are not only the best, but afford opportunities for commercial orcharding which cannot be well offset. Take, for example, the Gravenstein. Our friends in Nova Scotia thought that they had a safe monopoly of this luscious fruit. The demand for it was practically limitless in its season, but it was difficult to get it to Britain in the moment of its maturity in N. S. without great loss under the existing shipping conditions. For this reason the sister province has lost millions of dollars on her badly landed Gravensteins alone. The Gravenstein we grow is a superb apple, equal in every way, if not superior, to that of N. S., with this advantage that it ripens just one month later and is, therefore, ready for shipment across under much more favorable conditions of season. Those we have sent over have realized top prices, and we are ready to stay by the Gravenstein here to the end. These facts change old conceptions, too. Gravenstein and Nova Scotia are no longer synonymous terms.

But to the convention and fruit show. The sessions opened on the 10th with a big attendance ,despite stormy weather and interrupted communication. This enthusiasm continued through all the meetings to the close. "This annual meeting of the fruit growers of P. E. Island is one of the best, if not the very best, I have attended anywhere," said the distinguished Commissioner of Agriculture for Canada, Prof. Robertson. We certainly appreciate the compliment.

The reports showed a balance on the right side of the ledger after all demands were satisfied; narrated the work done in the different departments, criticised the show lists and recommended the encouragement of commercial fruit alone. In his exhaustive address the president discussed the vital matters up to which horticulture has come in Prince Edward Island, instanced the difficulties that menaced it at present, and made many useful suggestions. He warmly recommended the establishment of high councils from the various associations which would meet at Ottawa and crystallise into salutary enactments the work of these conventions. There is certainly a gap now between the provincial organization and the enacting body which could be bridged over in this way effectively. As well as treating seed sellers in the way dishonest packers are treated under the Mark's Act, the Island Association demands the inclusion of fraudulent nursery stock and levels penalties at dishonest top grafters. The president's address was received and adopted unanimously and all its recommendations legislated on.

These are some of the papers read by local horticulturists: "Difficulties of Fruit Growing in P. E. I.," by F. C. Bovyer; "The Apples I Grow at Inkerman," by John Robertson; "Cherry Growing," by D. J. Stewart; "Cranberry Culture," by C. R. Dickey; "The First Island Peaches," by Dr. Murchison; "Our Best Commercial Sorts," by Senator Ferguson; "My Experience With Plums," by Edward Bayfield; "Our Model Orchards," by Prof. Macmillan; "Inspection in P. E. I.," by D. F. I. Burke; and "Strawberry Problems," by Franklyn Bovyer.

The visiting scientists, however, added much to our island meetings. We had Prof. Robertson, a host in himself; Prof. Zavitz, whom one enthusiastic admirer called "the man with the hard name," although his lessons are easy and splendidly put to his audiences, that on "Clover Growing" being particularly opportune; Prof. Macoun, modest as ever, yet accurate and well posted on everything, and Mr. Harold Jones, of Maitland, Ontario. The others expected could not brave the dangers of winter communication. Prof. Robertson, whom nothing deters from fulfilling an engagement, crossed in the open boats at the Capes

in zero weather. He was sorry he did not take the Roman at his word and "lend him his ears." Jack Frost is no respector of persons.

As most readers of the Horticulturist have heard in one form or another the Commissioner's great address on "Education for the Improvement of Agriculture and Horticulture," I shall say nothing further here than to record the common opinion that it is unmistakably the best of his many good addresses and more likely to make itself felt on the life of the country.

The fruit show in connection with these meetings was beyond all expectations, successful. Room could with difficulty be found for all the specimens. The lists were restricted for good reasons to the following:

1. Best county collection of not less than 10, or more than 20 varieties.
2. " Ten varieties of commercial apples.
3. " Five varieties of winter apples.
4. " Plate Baldwins.
5. " Plate Banks.
6. " Plate Blenheim.
7. " Plate Ben Davis.
8. " Plate Fallawater.
9. " Plate Golden Russet.
10. " Plate Gravenstein.
11. " Plate Kings.
12. " Plate Mann.
13. " Plate Nonpareil.
14. " Plate Ontario.
15. " Plate Ribston.
16. " Plate R. I. Greening.
17. " Plate Red Russet.
18. " Plate Spy.
19. " Plate Stark.
20. " Plate Wagener.
21. " New and promising Commercial Apple.
22. " New and promising Dessert Apple.
23. " Plate Pears.
24. " Plate Cranberries.
25. Best Barrel of Apples.
26. " Box of Apples.
27. " Packer of Apples in barrels.
28. " Packer of Apples in boxes.
29. " Collection of Bottled Fruits.
30. " Collection of native tree seeds for windbreaks.

But many other varieties were in evidence. The diploma of the Association was a pretty work of art, with the scriptural text, "Be of good courage and bring to us of the fruits of the land," a particularly opportune injunction. The Ontarions remarked admiringly on the color and flavor of our fruit. "The best flavored apples in America are island apples," averred Prof. Robertson. Chief McKinnon, of the Inspector's Department, declares that the "Innerkip box" for apples, made and packed by the veteran orchardist of the province, John Robertson, of Inkerman, is easily the best package on the British market. These assurances encourage us when they are superadded to the knowledge which is everyone's now, that we can grow good fruit; that we pack it honestly; that the great market of Britain is nearer to us than our sister provinces, and that we have golden prosperity ahead of us.

For 1903 the officiality of the F. G. A. is about as last year. The president, your humble correspondent, would gladly have retired in some one else's favor, but could not refuse an honor so heartily conferred in the good of the cause. The constitution has undergone slight change. The secretary is now secretary-treasurer and the servant of the board of directors. Of the old body Messrs. Irving and Wells are replaced by Messrs. F. L. Haszard and A. J. McFadyen. The vice-president is still that good friend of horticulture, John Johnson, of Long River. We look for great things for our association and what it stands for in these years.

Alberton A. E. Burke.

NEED OF A RAILWAY COMMISSION

IT was a strong delegation that waited on the Dominion Government on Wednesday, the 11th of February, to ask for a railway commission, which should have power to regulate and control railway rates. The case of the fruit growers was ably presented by Mr. W. H. Bunting, the President of our Association, who pointed out that the railway companies had looked upon fruit as a luxury and not one of the necessities, and had put up the rates upon this class of goods to the very highest notch.

For example, said Mr. Bunting: "On 2,500 baskets of Niagara-grown peaches, shipped to points east of Toronto, mainly Montreal, the carrying charges by express were over 50 per cent. of the price received by the grower. The transportation companies received 13½ cents per basket for carrying, while the growers netted 8¾ cents per basket. When you reflect that the growers have all the risk of seasons, all the expenditure for help, and all the waiting for the crop to grow, I think you will agree with me that the proportion received by the carrier, as compared with that received by he producer, is altogether unfair."

FRUIT DISCRIMINATED AGAINST.

Mr. H. W. Dawson, of Toronto, speaking of the unfair rates on fruit compared with other products, said:

"Fruit is discriminated against to the extent of 200 to 500 per cent., as compared with other commodities. Why is this? The railways say it is because the fruit receives better care in the carrying; but I have followed shipment after shipment and have never yet found apples receive more care or attention than other classes of fruit. As an illustration, I might mention one case. There was shipped from Grimsby on the 30th November three carloads of apples. At the time of the shipment the shipper asked that cars be provided for shipping to Boston. The railway refused cars to Boston, but tendered cars to St. John. The understanding was that the fruit was to be put on board a steamer announced to sail from St. John on the 14th of December. The ship did not sail on the 14th of December; she did not sail until the 14th of January, and all that time the apples lay at point of trans-shipment exposed to the severe weather. The shipper was not notified of the delay, and had no opportunity of protecting his fruit; in fact, the first intimation he had of the delay was when a cable was received from England on the 6th of January asking what had become of the apples. On that one shipment over $1,000 was lost. The fruit was frozen and did not even realize the amount of the freight."

In illustration of the discrimination between fruit and other products, Mr. Dawson compared the case of flour and apples. "You can," said he, "get a rate of 13½ cents per cwt. on flour to the seaboard, while the rates on apples is 23½ cents. These are the rates for export in both cases."

Mr. D. J. McKinnon emphasized Mr. Dawson's statements and called attention to the fact that the freight rate on flour to the seaboard represents six per cent. of the value of the goods, the rate on apples 23½ per cent., the rate on mixed fruit 44 per cent., and the rate on grapes from Ontario to the seaboard was 55 per cent. of the value of the product carried. "We are," continued Mr. McKinnon, "under a great handicap in sending fruit to the far east and the far west. The rates on such shipments are really more than the traffic will bear. Were these rates reasonable, we could produce fruit enough to supply every consumer in our own country at a reasonable price. We should be

placed in a position to do this, because fruit to-day is not a luxury, but really a necessity."

THE GENEAL STATEMENT.

The whole matter was summed up and finally presented in the following form, which was written out and left with the Premier, and we hope it will be the means of bringing us some relief from the present injustice in freight charges, which is crippling our industry and preventing the proper development of the fruit industry:

"The request for a systematic readjustment of the railway freight rates now charged in this country is based upon these general statements:

"1. Rates on short hauls within Canadian territory are in many cases so high as to be practically prohibitory.

"2. Rates on long hauls also within Canadian territory do not in many cases bear fair proportion either to the cost or value of the service rendered.

"3. Rates on local Canadian traffic are in many cases much higher than rates under similar conditions on local traffic in the United States.

"4. On traffic originating in the United States and carried over Canadian lines to the seaboard, the rates are in numerous instances not only relatively but actually lower than the rate imposed on Canadian produce carried over the same lines but for a shorter distance."

GRAFTING APPLE ON THORN

BY

A. K. GOODMAN,

SECRETARY CAYUGA HORTICULTURAL SOCIETY.

I HAVE made several attempts at grafting apple and pear scions on the common thorn with marked success. Following the directions given in the Canadian Horticulturist as to the preparation of the grafting wax, I adopted this method. Scions with two buds were taken in the spring just before the trees burst into leaf; the thorn was then cut off with a saw to within a foot of the ground; a slit was made in the top and held open by a wedge, the scion cut in a reverse manner and inserted so that the space between the inner bark and wood of each exactly met and formed an unobstructed avenue for the circulation of the sap of the stock through the scion; the junction was then covered with the grafting wax and covered with rough canvas and tied until the wound was healed. The photograph shows the graft of an apple (Northern Spy) on thorn, four scions, with its growth of three feet and over at the end of the first season, before pruning. The pear grafts made an equally vigorous growth, while the second season the results were quite as good.

GRAFTING WAX is made by melting together 2 lbs. resin, ¼ lb. beeswax and ¾ lb. of tallow.

FIG. 2572. APPLE GRAFT ON THORN.

APRIL NOTES FOR LAWN, FLOWER, VEGETABLE AND FRUIT GARDEN.

WORK ON LAWN—PRUNING SHRUBS—HARDY ROSES —ROSE THRIP—FLOWER GARDEN—SEED SAVING— VEGETABLES—ASPARAGUS—THE FRUIT GARDEN.

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C, GUELPH.

LAWN PRUNING.—The first real spring work on the lawn will be such pruning of flowering shrubs and roses as may be considered necessary. with one or two exceptions all the pruning required by the smaller growing lawn shrubs, such as spirea, deutzia, weigelia, forsythia, etc., will consist of merely thinning out the most prominent branches so as to produce a natural, and at the same time a symmetrical looking shrub. Do not clip or shear off the young tips of growth, as is often done in the spring as well as later on in the summer. This young growth is the flowering wood of the present season, as a rule, and should not be trimmed off. One exception to this style of pruning, however, is that of pruning the different varieties of lawn or hardy hydrangeas. With these latter the pruning should be severe, if it was not done late last autumn or in early winter. (I prefer the latter time for pruning hardy hydrangeas.) If not already done, prune the young shoots of these plants back to within three or four inches of the base of the young growth, leaving only three or four buds. By pruning severely in this way, and by cutting out altogether the small weak shoots on the plant, larger panicles of bloom will be the reward for this severe pruning. As the hydrangea paniculata grandiflora is one of the plants for distribution to members this spring, I might add that these plants, if the young growth is unpruned when received, would be very much benefitted by having the strongest

shoots cut back to within three or four inches of the old growth as before described, as well as by having the small weakly shoots entirely removed.

HARDY ROSES.—At the present date, March 11th, with exceptionally mild weather prevailing, it looks as if rose pruning would have to be done very early this spring. However, as a rule, the first week or ten days in April is early enough, especially in the northern sections of Ontario. Roses should be pruned just as soon as the buds show the slightest sign of growth. Prune bush roses severely. New shoots of these starting from near the surface of the ground should be cut back so that they are from fifteen to eighteen inches in height. Young shoots from old wood that is perhaps already nearly eighteen inches or more in height, should be cut back to within a few inches of the old wood. Thin out altogether the weak spindled growth as in the case of the hydrangeas. Bush roses are benefitted by severe pruning if the young wood only is pruned.

CLIMBING ROSES should not be pruned so severely. Thin out the very small weakly growth and cut the strong canes back to five or six feet in length. The length of these canes must very largely depend on the position they occupy. If on a trellis long canes can be left, if grown on stakes the canes should be pruned back more. About a pound of bone meal or a small quantity of hen or cow manure forked in around rose bushes or flowering shrubs at this season will help them considerably. The soil should not be forked over, however, until it has become fairly dry.

ROSE THRIP.—Do not forget that these little white pests, that devour and despoil the foliage of the roses later on in the summer, should be attended to early in the season. Give your rose bushes a sprinkling of strong tobacco water or tobacco dust as soon as the first leaves are developed. Don't leave it until you see the thrip; it is often too late then. A very dry cigar powdered up fine makes a good tobacco powder for roses. Or pull a cigar to pieces, place it in a jar or dish, and pour about a quart of boiling water on it. Allow the solution to cool, when it can be sprinkled on the roses. This solution can often be obtained easily, when raw leaf tobacco or stems cannot be had to make the above solution. Sprinkle the bushes every week or ten days until the buds commence to open with the tobacco solution.

Any bare spots on the lawn should have a little fresh fine earth raked in on them and some lawn grass seed sown as early as possible. Roll the lawn as early as possible. Do not let it get too dry and hard before putting the roller on. Get your lawn mower sharpened early before the busy season commences.

All winter covering used for plant protection, as well as all dead foliage, etc., should be removed and burned as soon as the weather permits of this being done.

SEED SOWING.—Almost all varieties of flower seeds can be sown outside now, as soon as the soil is dry and in proper condition. Portulacca, nasturtium, balsam, cobea scandens and possibly poppies, would however be better if not sown until late in April or early in May. Sow all garden seeds when the soil is fairly dry, and not when it is wet and sticky. Sow sweet peas as early as possible, a little frost will not hurt them.

VEGETABLE GARDEN

ASPARAGUS.—Fork over the asparagus bed as soon as the frost is out, and the soil at all dry enough. Give the bed a good coat of salt afterwards. A bushel of salt to about every rod of ground will not be too much. Asparagus plants like salt, and it keeps down weeds as well as being a fertilizer. For a city or cottage garden asparagus is best grown in beds, but for the farm garden in long rows. Every farmer should have plenty of asparagus, if only for home

use. It is the earliest, most wholesome and easiest grown of vegetables. It takes three or four years to get good asparagus fit for use from seed, but when once obtained it will last several years and give an abundant supply in April and May of good wholesome food. A good mulching of manure in the fall, and cultivation in the summer is all it needs when once established. A couple of rows about a hundred feet in length would provide sufficient of this vegetable for a large family. The seed should be sown as early as possible in spring in drills about one and a half inches in depth and about three or four feet apart. Conover's Colossal asparagus is about the best and hardiest variety. Two-year-old plants will give quicker results than seedlings.

Peas, Parsley, Onions, Parsnips, Lettuce, Salsify and Leeks should be sown as soon as the ground can be worked. Peas should be sown in drills and covered with about two inches of soil. Dwarf varieties, such as Gradus, Horsford's Market Garden, and Stratagem, are good varieties to sow. Sow these two feet apart between the rows. Parsnips should be sown in drills about an inch deep and eighteen inches between the drills. Onions, lettuce, parsley and leeks in drills about fifteen inches apart, covering the seed with about half an inch of soil. The drills for salsify should be eighteen inches apart, and the seed covered with about an inch of soil. Prizetaker and Danver's Yellow Onion are about the two best varieties of onions. The White Portugal is the best white onion. Sow these in drills one foot apart and cover the seed with about half an inch of soil. Onions like good rich soil. The Nonpariel, Gardener's Favorite and Early Ohio are three good varieties of lettuce. Sow in drills nearly an inch in depth and fifteen inches between the drills.

Leeks should be transplanted into well-manured shallow trenches when the plants are five or six inches in height. Put the plants six or eight inches apart, give them plenty of water in the summer, and mould the plants up toward fall. Potatoes can be planted late in April or early in May. Beans, beets, radishes and carrots should be sown early in May.

FRUIT GARDEN

Strawberry Plants should have their winter mulch removed at once, if not already done. Fork between the rows and pick out all weeds as soon as the weather permits. About 1 lb. of nitrate of soda to every square rod of the strawberry patch, applied early in May, will prove a good fertilizer for an old patch. Sprinkle the nitrate of soda between the rows and not on the plants, as it might damage the foliage.

Prune all gooseberry and currant bushes at once, if not already done. It is rather late for pruning apple, pear and plum trees, but all dead wood and suckers can still be removed.

The dead wood should be cleaned out from the raspberry canes. Stake and tie up the strongest canes left. Top them back to from four to five feet in height. Cuthbert and Golden Queen raspberries are the two best varieties for home use. Fork between the rows before the ground gets hard and dry. A mulching of fairly short manure in May will help the crop of raspberries. Put the mulch on after the weed crop has started and been hoed down once or twice. By doing this before the mulch is put on very few weeds will appear until autumn.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

WORK OF THE HAMILTON CITY IMPROVEMENT SOCIETY

BY A MEMBER.

THE PIONEER SOCIETY—THE BOYS AND GIRLS INTERESTED—CHRONIC KICKERS CO OPERATION OF PRESS AND CLERGY—HOW TO PROCEED.

THE formation of a Canadian League for the object above specified comes not a moment too soon, the need of it being a crying one, not only in our cities and towns, but in our villages as well. Mr. Hayden, of Cobourg, who was elected president, desires great praise for the hard work he must have put in to bring such a representative gathering together as assembled in the Toronto Board of Trade Council Chamber on the 14th of February last. A great deal of the discussion which took place was of a very useless nature, but it perhaps cleared the atmosphere and enabled Mr. Alexander, of Hamilton, to put before the meeting a resolution of all the impending difficulties and settle the meeting down to transact the business for which they had been called together. To this gentleman are all horticulturists indebted in the past for valuable advice given, and he has also proved himself one of the most forward members of the Hamilton City Improvement Society, the first of its kind in the Dominion of Canada. This society was formed in June, 1899, for the purpose of promoting improvement, cleanliness, and beautifying of the city, and to assist and stimulate the authorities in enforcing the laws relating thereto. From its inception the society has made a point f "helping," not "abusing," the authorities, and in this way has made friends of the aldermen and all the officials of the City Hall. Requests from the society to any of the departments receives careful attention, and no demands for a large outlay of money has ever been made; but notwithstanding this fact many little changes have taken place tending toward the comfort and convenience of the public. People in Hamilton are now beginning to realise the good objects the Improvement Society has in view, and the thorough unselfishness of these objects. They are beginning to see that interest in this direction makes better citizens of people, raises the moral tone of the community, especially amongst our boys and girls, and the older hard headed fellows are coming to the conclusion that a forward movement of this kind must enhance he

FIG 2573. AN ATTRACTIVE FOOTPATH IN A PARK.

value of real estate, a most important factor in this money-making age. At the start the Hamilton society had the usual kicker, or better, perhaps, the "chronic kicker" rapping it over the knuckles, dubbing its members faddists, etc., but that is now a thing of the past, and it is supported by rich and poor alike. A glance over the names of the executive committee convinces one it is the most representative one in the city, composed of busy, active men, having the interest of the advancement of Hamilton in every way very much at heart. The foregoing remarks may be well considered by societies just forming, and it would be well for them all to go easy at the start, not attempting too many reforms, not being intrusive, and not forming too high ideals. The press in Hamilton has been of great assistance to the workers. Always have they found it ready and willing to aid in every possible way. Make confidents of the editors, and you are always sure of good returns. The clergy have also materially assisted city improvement, not only in committee, but in active work during the flower competitions. At the same time our churches and schools could have set a much better example than they have done in making their surroundings more pleasant to the passerby. However, better things are hoped for in the future, through this medium. To make improvement societies a success ou must have the enthusiast; he must be at your meetings, and he must be on your committees, and in selecting the latter get as many of the busy men of your community on them as possible. They are the ones who usually have the most time at their disposal for the public good. A good secretary is an indispensable attachment. Don't get a machine. He must be a man of some initiative, and when you get such a one don't put too much on his shoulders. Interest as many as you can to assist him.

The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

THE PLANTS will be sent out during this month. Renewals for 1903 should therefore be sent in at once, with choice of plant, whether hydrangea, sweet syringa or spiraea. Englose $1.00 to the secretary, Mr. G. C. Creelman, Parliament Buildings, Toronto.

VOLUMES FOR BINDING should be sent in to Mr. G. C. Creelman, accompanied by cash, 40 cents, for which they will be beautifully bound in cloth, green and gold, and returned free of postage. We have also a fine stamp for the sides and back. For gilt edge leaves, 10 cents extra.

LECTURE COURSE FOR OUR HORTICULTURAL SOCIETIES.

FOR THE ENCOURAGEMENT of all our affiliated horticultural societies, Mr. G. C. Creelman, our efficient secretary has arranged the following schedule of lectures on horticultural topics. If any societies are omitted it is because they have failed to accept the offered lecture, which costs them practically nothing. Where possible, it will serve to popularise the evening lecture and at the same time make the lecturer's visit doubly useful, if a mass meeting of the schools can be held at 3 p.m. of the same day, to hear an address especially adapted to students. No doubt, wherever a Civic Improvement League is affiliated, a lecture might be secured for them also.

Division No. 1.

Delegate—T. H. Race, Mitchell, Ont.

Subjects:

1. The Rose, its Cultivation and Influence Upon the Home.

2. Nature Study in the Garden.
3. The Influence of Floriculture on Child Life.
4. The Social and Moral Influence of the Home Surroundings.
5. Bulb Culture and its Attractions.
6. The Work of the Horticultural Societies.

Date.	Society.
March 31	Bowmanville.
April 1	Millbrook.
" 2	Lindsay.
" 3	Peterboro.
" 4	Stirling.
" 6	Picton.
" 7	Napanee.
" 8	Cardinal.
" 9	Woodstock.

Division No. 2.

Delegate—Wm. Hunt, O. A. C., Guelph.

Subjects:

1. The Propagation and Care of Window Plants.
2. Hardy Border Perennials.
3. Planning and Planting the Home Grounds.

Date.	Society.
March 30	Toronto Junction.
" 31	Grimsby.
April 1	St. Catharines.
" 2	Niagara Falls.
" 3	Hagersville.
" 6	Tilsonburg.
" 7	Simcoe.
" 8	Port Dover.
" 9	Aylmer.

Division No. 3.

Delegate—T. H. Race, Mitchell.

Date.	Society.
March 16	Seaforth.
" 17	Kincardine.
" 18	Mount Forest.
" 19	Walkerton.
" 20	Owen Sound.
" 21	Elora.
" 23	Elmira.
" 24	Waterloo.
" 25	Hespeler.
" 26	Brantford.
" 27	Paris.
" 30	Cayuga.

SPRAY CALENDAR—PART No. 1

DIRECTIONS FOR TREATMENT OF INSECT PESTS AND PLANT DISEASES.

BY

PROF. WM. LOCHHEAD,

OF O. A. C., GUELPH.

1. Bordeaux Mixture—(For Fungous Diseases). Copper sulphate (bluestone), 4 pounds; lime (fresh), 4 pounds; water, 40 gallons. In making this mixture, observe the following precautions and directions: 1. Use nothing but fresh quick-lime. The lime should be slowly slacked by the gradual addition of water. For convenience stock solutions of milk of lime and bluestone should be prepared and kept in different barrels in readiness for spraying operations. In barrel No. 1, 25 pounds of fresh lime are gradually slaked, and barrel made up to 25 gallons of water; in barrel No. 2, 25 lbs. of copper sulphate, or bluestone, are dissolved in 25 gallons of water. For rapid dissolv-

ing use warm water. These are the stock solutions. Each gallon of milk of lime contains one pound of lime, and each gallon of bluestone contains one pound of bluestone. When we wish to make up a barrel of Bordeaux mixture we take out 4 gallons of milk of lime and 4 gallons of bluestone solution, and either dilute each in separate barrels in 20 gallons of water before mixing in the barrel attached to the spray-pump, or else pour each separately into the barrel in which are already 32 gallons of water. The first method is the preferable one. 2. Never mix the concentrated stock solutions together. If the milk of lime and bluestone are mixed in the concentrated form, just as they are taken from the stock solution, a precipitate of a flakey nature will soon settle out, and either fall to the bottom or clog the nozzle. 3. Test the Bordeaux to find out whether sufficient milk of lime has been added. This is most easily done by means of the ferrocyanide test. A saturated solution of this substance can be purchased at any druggist's for a few cents. In testing, place some of the Bordeaux, which has been thoroughly stirred, into a saucer, and add a few drops of the ferrocyanide. If sufficient lime has been used, no discoloration will appear, but if insufficient, a deep bark brown color will be produced. 4. Always strain the milk of lime to prevent gritty particles from clogging the nozzles. 5. Use a fine nozzle; do not soak or drench the tree. 6. The stock solutions will keep, but the Bordeaux mixture becomes useless after standing for a day or two.

2. The Combination Bordeaux and Paris Green Mixture—(For Fungous Diseases and Leaf-Eating Insects). This mixture is prepared like the Bordeaux, but 4 ounces of Paris green are added and thoroughly stirred before spraying. Copper sulphate (bluestone), 4 lbs.; quick lime (fresh), 4 lbs.; Paris green, 4 oz.; water (1 barrel), 40 gallons. In small quantities it may be made as follows: Bluestone, 4 level tablespoonfuls; quick lime, 4 level tablespoonfuls; Paris green, 1 level tablespoonful; water, 1 pail (2 gallons).

3. Copper Sulphate—(Bluestone or Blue Vitrol). For destroying mustard or charlock or Herrick in grain fields. Copper sulphate, 9 lbs.; water (1 barrel), 45 gallons. This quantity is sufficient for an acre.

4. Ammoniacal Copper Carbonate Solution.—Copper carbonate, 1 oz.; strong ammonia sufficient to dissolve the copper carbonate, usually more than ½ pint; water, 10 gallons. This solution is not much used, and is recommended only in cases where the fruit is so far advanced that it would be disfigured by using the Bordeaux mixture.

5. Potassium Sulphide—(Liver of Sulphur). Used to control gooseberry mildew. Dissolve 4 oz. in 8 gallons of water.

6. Paris Green Mixture—(Liquid). For leaf-eating insects. Paris green, 1 lb.; water, 150 gallons; lime, 2 lbs. freshly slacked; or, Paris green, 1 teaspoonful (level); water, 1 pail (2 gallons); quick lime, 1 teaspoonful (level). Paris green mixture—dry: Paris green, 1 lb.; flour or dust, 100 lbs.

7. Poison Bait—(For Cutworms, Wireworms and Grasshoppers in gardens and cornfields). Wheat bran, 50 lbs.; molasses (any kind), 2 quarts; Paris green (good grade), 1 lb.; water, enough to make a thick mash. Handfuls of the bait are scattered about the garden at the base of the plants and among the corn rows in the evening.

8. Hellebore—White hellebore (fresh), 1 oz.; water, 2 gallons.

9. Pyrethrum, or Insect Powder—Pyrethrum powder (fresh), 1 oz.; water, 3 gallons. Or, Pyrethrum powder, 1 oz.; flour (cheap), 5 oz. Mix thoroughly, allow to stand over night in a closed box, then dust on plants through cheese cloth. Recommended for green cabbage worm.

10. Kerosene Emulsion—(For Bark lice

and Plant lice). Hard soap, ½ lb., or soft soap, 1 quart; boiling water (soft), 1 gallon; coal oil, 2 gallons. After dissolving the soap in the water, add the coal oil and stir well for 5 to 10 minutes. When properly mixed it will adhere to glass without oiliness. A syringe or pump will aid much in this work. In using, dilute with from 9 to 15 parts of water. Kerosene emulsion may be prepared with sour milk (1 gallon, and coal oil (2 gallons), no soap being required. This will not keep long.

11. Tobacco Decoction—Refuse tobacco, 2 lbs.; water, 5 gallons. Boil the mixture for 30 minutes or more, until a dark brown tea-colored solution is obtained. Keep it covered until cool. It may then be used undiluted for spraying infected plants.

12. Whale Oil Soap—For Plant Lice: 1 lb. in 7 gallons hot water. For san Jose Scale in winter: 2 lbs. in 1 gallon hot water applied as the buds are swelling.

13. Soap Solution—For plant lice on house plants a 5c. cake of soap in 4 gallons water.

14. Crude Petroleum—(For San Jose Scale in early spring). A 20 per cent mechanical emulsion applied by a combination emulsion pump to invested trees just before the buds start. (To be done by an experienced person.)

14 (*a*). Crude Petroleum—Whale Oil Soap Emulsion...Recommended for San Jose Scale and other hibernating insects. Crude petroleum, 2 gallons; whale oil soap, 5 lbs. dissolved in 1½ gallons of boiling water. Churn thoroughly for 5 minutes or more, and add water to make 10 gallons.

15. Wash for Borers—First, add soft soap to a saturated solution of washing soda to make a thick paint, then add 1 pint crude carbolic acid, and ½ lb. Paris green to 10 gallons of wash. To be applied to the trunks of apple and maple shade trees in early June.

16. Lime Wash—(For Oyster-shell Bark Lice, etc). Slake 1½ lbs. fresh lime in 1 gallon of water. Strain the wash before spraying. To be applied during winter to trees infested with oyster-shell bark lice.

17. Formalin—(*a*) For Potato Scab: 8 oz. or ½ pint in 15 gallons water. Soak seed potatoes in this solution for two hours. (*b*) For Smut in Oats and Wheat: 8 oz. or ½ pint in 5 gallons water. Sprinkle thoroughly the seed with this solution.

18. Carbon Bisulphide—(For Weevils in Peas and Grain). 1 lb. or 1 pint for every 100 bushels of grain, or 1,000 cubic feet of space. Liquid placed in shallow dishes on top of grain or peas.

Using Traceless Harness.

Innovations on old established ways of doing things necessarily proceed slowly. If we did not know this to be true it would be difficult to see why the hitching of teams to their loads without whiffletrees or traces by the Baker Traceless Harness advertised in our columns should not spring quickly into general use. This traceless harness has many things to commend it. We might instance a freer movement on the part of the team, saving in weight, simplicity in harness and hitching, short turning, getting closer to the load, comfort in hot weather, etc. It is particularly adapted to the plow, harrow, cultivator, scraper, log drawing, in fact all kinds of low-down work. The uninitiated might have misgivings of side draft, or added weight upon back or neck. The reverse is the case. It affords a straight square draft from the shoulder, without twisting. The great point of merit, however, lies in the doing away with the nuisance of swinging traces and whiffletrees, which are so frequently the cause of annoyance, and giving free access behind and on both sides of each horse when hitched to load. To the fruit culturist its advantages are first apparent. Here it has been most widely adopted, and has a special use in the protection afforded trees shrubs and vines. But the advantages for many other farm purposer are almost as great. Any one interested should write the manufacturer at the address given in the advertisement for his circular, which sets forth the advantages in detail.

NORTHERN GROWN TREES

Hardy Fruit and Ornamental Trees,
Small Fruits, Roses, Shrubs, cheap.
Mammonth Prolific Dewberry a specialty.
Send for Free Catalogue. It tells the whole story.

J. H. WISMER, - - Nurseryman,

PORT ELGIN, ONTARIO.

FIG. 2574. GREEN GAGE.

THE
CANADIAN HORTICULTURIST

MAY, 1903

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GREEN GAGE

THE Green Gage is a good representative of a very important group of domestic plums, which is both very ancient and very desirable. Other well known varieties of the Green Gage group are Reine Claude, Imperial Gage, McLaughlin, Jefferson, Washington, General Hand, Peter's Gage, Golden Gage, etc.

In Ontario the most popular variety of the Green Gage group of plums, especially for cooking purposes, is the Reine Claude de Bavay, commonly known among us as Reine Claude; but in the catalogue of the American Pomological Society called Bavay. The fruit of this plum is larger than that of the Green Gage; the tree is a stronger grower and hence perhaps better suited to the commercial orchard, but in quality no one of the group excels this old typical kind, the Green Gage.

Dr. Robert Hogg, author of the "Fruit Manual" of Great Britain, gives the following history of the origin of this plum:

This universally known and highly esteemed fruit has been longer in this country (England) than has been generally supposed. It is said to have been introduced at the beginning of the last century by Sir Thomas Gage, of Hengrave Hall, near Bury St. Edmunds, who procured it from his brother, the Rev. John Gage, a Roman Catholic priest, then resident in Paris. In course of time it became known as the Green Gage plum. In France, although it has many names, that by which it is best known is Grosse Reine Claude to distinguish it from a smaller and much inferior plum called Reine Claude Petite. The Green Gage is supposed to be a native of Greece, and to have been introduced at an early period from Italy, where it is called Verdochia. From Italy it has passed into France, during the reign of Francis I., and was named in honor of his consort, Queen Claude. Shortly afterwards it found its way into England under its original Italian name, Verdochia, from which we may infer that it was brought direct from Italy. It is mentioned by Parkinson in 1629 under the name of Verdoch, and from the way in which he speaks of it, it seems to have been not at all rare, nor even new. Even so late as the middle of the last century, after it had been reintroduced and extensively grown under the name of Green Gage, it continued to bear its original title, and to be regarded as a distinct sort from the Green Gage.

If any of our readers is making a selection of plums for his home garden, we would advise him not to omit a tree of the Green Gage for kitchen uses; or, if he wishes to combine both kitchen and market purposes, then let him plant the Reine Claude.

The Green Gage tree is not a rapid grower, but it is healthy and fairly productive. The fruit is smaller than Reine Claude, and must be thinned to make it reach a proper size. The skin is greenish, yellowing toward ma-

turity; the flesh is pale green in color, and the texture melting and juicy; the flavor is rich, sweet and agreeable. In season it is earlier than Reine Claude, coming in about the middle of August.

OPINIONS OF OTHERS.

HAROLD JONES, Maitland (St. Lawrence District):—The Green Gage plum has not proved generally satisfactory in this section. Trees that I planted in 1897 are partly dead, and have never blossomed. They suffered during the winter of 1902. I know of two trees that are protected by buildings from the north wind that have given good crops of fruit in favorable years; but generally speaking, the Green Gage is an uncertain cropper here and not profitable.

My experience and observation teach that Enropean plums are generally unsatisfactory in this latitude, but some plums of the native American class are of good quality and succeed well.

A. E. SHERRINGTON, Walkerton:—The Green Gage plum is hardy and productive here, but in my opinion not as valuable as the Imperial Gage.

J. G. MITCHELL, Clarksburg:—The market demands large and showy fruit, and the Green Gage, being rather small, has always sold at a low price here. Where the Reine Claude succeeds, which is really a large Green Gage, I think there is little use in growing the small Green Gage.

W. M. ORR, Fruitland:—We do not grow the Green Gage. Although the quality of the fruit is good, I consider it too small, and the tree is a poor grower. I prefer the Imperial Gage, of which the fruit is large and of good quality, and the tree vigorous and productive.

CHARLES ELLIS, Meaford:—Very few Green Gage plums are grown about here. The Reine Claude is often sold under that name; but the true Green Gage is small and not very productive so far as I have seen it, but it is very good for home use.

CHARLES LOWRY, Queenston:—The Green Gage is highly esteemed both as to productiveness of tree and quality of fruit; but the sale is limited. Every year I think the price of plums grows less, and unless some foreign market opens for them it seems to me there is little hope for plum growers.

F. G. STEWART, Homers:—The Green Gage is considered the best canning plum, and we get more for it at the factories than for any other. For home use it is superseded by the Reine Claude.

Editorial Notes and Comments

PLUM GROWING.

UNDER the auspices of that progressive body of fruit growers, the Niagara Peninsula United Fruit Growers' Association, a splendid meeting was held in the Town Hall, Stoney Creek, on the 12th March. The President, Mr. D. J. McKinnon, of Grimsby, occupied the chair, and the principal speaker was Mr. J. S. Woodward, of Lockport, one of New York State's foremost teachers of advanced methods in fruit growing.

CONSCIENCE AND FRUIT GROWING.

IN Mr. Woodward's opinion fruit growers might be divided into two classes. (1) Those who grow fruit for fun; (2) Those who grow it for money. The first class

may, of course, plant whatever varieties please their fancy, but to the latter class he had some advice to offer. He had no sympathy with men who had no conscience in their business so long as it paid in dollars and cents; who would grow fruit to sell which they knew was unfit to eat; who grew Kieffer pears, for example, and sold them on their exterior appearance, knowing the buyer would be cheated in his purchase.

Kieffer pears often do not bring 10 cents a basket in Philadelphia market, for in that city their real value is beginning to be known; and the worst is not yet, for there are immense orchards of this variety coming into bearing, and shortly there will be more Kieffer pears than can be sold at a paying price. "I had the first Kieffer pear orchard in Western New York," said he, "and might have been a rich man if I had at the beginning planted it largely, but to-day I have not twenty Kieffer trees, and shall never plant another." He thought perhaps the Kieffer would make a good stock on which to top graft the Bosc.

PROPER SOIL FOR PLUMS.

ONE of the frequent mistakes made by by beginners when planting an orchard is in the choice of soil. They plant a plum orchard on light sand, a soil quite unsuited to the plum, and then when the trees never give paying crops they say plum culture is unprofitable. Probably sandy loam encourages too great wood growth, while a clay soil gives but moderate wood growth and throws the tree into fruit bearing. In some parts of the Niagara district we have a sandy loam at the surface and a clay subsoil, and on such soils excellent plum or pear are produced, the roots of the trees reaching down into the heavier ground beneath, thus affording excellent conditions. In Mr. Woodward's opinion the ideal soil for the plum is rather heavy, with a good proportion of clay, and not too wet. Thomas advises applications of potash and ground bone to increase the fruitfulness of the plum tree.

SOURCES OF TREE NOURISHMENT.

WE too little consider the great importance of the foliage in tree growth. The great bulk of the carbon which enters into the woody structure of the plant is taken in directly through its leaves. What the stomach and lungs are to animals, those delicate complex organs, the leaves, are to the trees. They, however, act the reverse of the process of animal breathing, for they purify the air for us, taking from it the carbonic acid gas, and restoring its oxygen, under the wonderful influence of the sunshine.

Mr. Woodward emphasized this point, showing the importance of using insecticides and fungicides in order to keep the foliage healthy and intact, so that it might fully perform its natural functions. In speaking of the mineral elements taken up from the soil, he explained how necessary it was that they should be available, for, as he expressed it, "all plants and trees are soup eaters," and must have their food in a soluble form.

BIG PLUMS PAY.

SLOWLY but surely we are learning the lesson that it does not pay to grow small second class fruit of any kind. We are losers in two ways by it, (1) in the low price received for the second class article, and (2) in the exhaustion of our trees and our soil. This last point is seldom considered, but it is true that it requires more nourishment from the soil and is more exhaustive to the vitality of a tree to produce a basket of small sized plums or peaches than a basket of large sized ones; and the reason is that it is the seed that takes the strength of the tree and not the flesh.

Mr. Woodward put this very strongly at the Stoney Creek meeting. "What I want

to sell," said he "is the water, which does not cost me anything. The flesh of my plums is nearly all water, while the pit contains 4 per cent of mineral matter. There is a law against selling water and calling it milk, but there is no law against selling water in the shape of fruit, and the more you can get in it the better the buyer is pleased. We want *big fruit,* the *bigger the better.*" The way to get it was to give attention to all cultural details, e. g., we must *spray* to keep the foliage clean—he would use Bordeaux, ¼ strength for plum trees, and do it thoroughly; we must *cultivate;* we must *feed;* plums will take any quantity of manure, it will not hurt them. Mr. Woodward had picked six consecutive crops of Bradshaw off the same trees while most people only took a crop in alternate years. He fully expected another crop in 1903; he did not expect to skip any fruit season; and what was the explanation? It was *high manuring.* He applied eight or ten loads of stable manure an acre every year, and it paid him well. We must also *prune*; the branches and twigs must not grow so thick as to exclude the sunlight, so they must be well separated; and then they must be cut back annually to prevent a sprawling habit. And we must *thin.* By this thinning he had raised Bradshaw plums—well "not quite as big as my fist," said he, "but very near it."

By attention to these details we can grow plums that will bring high prices. Size has a wonderful effect upon the price. "Last year," said Mr. Woodward, "my Bradshaw plums brought me 60c. a basket, and a neighbor's Bradshaws only brought him 6c. a basket! What made the difference? Just the size."

DISTANCES TO PLANT FRUIT TREES.

THERE has been a tendency among fruit growers to plant trees too close together. Some have planted apples 25 or 30 feet apart; cherries, plums and pears, 15 feet; peaches, 12, and dwarf pears, 10. There may be some varieties of less vigorous habit that will flourish at such distances, with close pruning. Indeed, we all know about the miniature old trees of the Japanese gardens, and the possibilities in this direction. Mr. Brennan, of Grimsby, has his peach trees 12 feet apart, and gives them such close and constant shortening in that he has excellent results, and is an ardent advocate of his system. But in general practice close setting is a serious mistake, for in after years when the trees reach full maturity, unless much greater attention is given to pruning than is usual among fruit growers, the orchard will be a tangle, into which the owner can neither get his wagon or his spray pump; and into which the rays of the sun can scarcely penetarate.

Generally speaking, the following distances are advisable: Apples, 40 feet; pears (standard), peaches, plums and cherries (sweet), 20 feet; sour cherries, 15 feet; dwarf pears, 12 feet. Of course this general rule must be varied in some cases; for example, we know of a row of magnificent Flemish Beauty pears at Mr. E. C. Beman's place at Newcastle, each of which covers an area much greater than 20 feet in diameter; but this has a more spreading habit than most varieties.

Mr. Woodward plants his plum trees 20 feet apart each way, and he considers it a great mistake to plant trees too close together. "They need to have the sunshine on the *ground* itself between the trees," was his way of putting it.

VARIETIES OF PLUMS.

THE Bradshaw seemed to be Mr. Woodward's great favorite. Among other varieties he mentioned Reine Claude, Grand Duke, Fellemberg, Monarch, Arch Duke and Prince Englebert.

What do you think of the Red June? we asked.

"I have no use whatever for the Japans," said he. They are not good enough in quality, and he had found them almost as subject to yellows as the peach. He had considerable experience with them, but it was all unfavorable. He had tried an orchard first of Abundance, and then of Burbank, but had finally rooted them out entirely.

In growing Reine Claude he had found it apt to die of severe cold when root grafted or budded in the nursery, and thus having its own trunk. He much preferred this plum top worked on the Lombard, which gives it a good healthy body.

PLUM ROT.

How do you destroy plum rot?

In reply to this question Mr. Woodward stated that he began by gathering all the mummy plums found remaining on the tree in early spring, and burned them up. Then he sprayed his trees with weak Bordeaux, say 2 oz. to 50 gallons of water.

Would it answer to plow them under?

No; not nearly so well. They should be burned up, and thus the spores will be totally destroyed. Some varieties are much more subject to rot than others, and he had given up growing certain varieties, particularly the Washington, on this account.

LIME AND SULPHUR.

MR. WOODWARD would make this without boiling, by using caustic potash; and so far as tested it was just as effective as the boiled mixture. The same proportions of lime and sulphur were used; the lime was put to slake with hot water, and the sulphur added while slaking. After this was done, one-half pound of potash or one pound of caustic soda was added to every pound of sulphur. We were all much interested in hearing of any simpler method of making this valuable lime and sulphur wash than by the troublesome method of boiling, even if a threshing engine be convenient.

SMALL HOSE BEST.

ORDINARILY the spray pump makers provide a hose altogether too large. The smallest usually furnished is ½ inch, and when one has high trees to reach the weight of hose is unnecessarily heavy. Mr. Woodward never uses a hose larger than ⅜ of an inch in diameter. He elevates it by means of a bamboo pole, to the top of which he wires the hose, and continues it down for four or five feet. This he finds much more convenient than using the extension rods furnished by the pump makers.

SHALLOW CULTIVATION IN SUMMER.

CONSTANT cultivation was advocated by Mr. Woodward to open up soil to influence of sun and air, and to conserve its moisture by a shallow dust mulch all summer.

How deep would you cultivate in summer?

"I would not stir the soil more than two inches below the surface," said Mr. Woodward. "Just deep enough to keep down the weeds. I would not use a plow at all in an orchard if I could avoid it, but when necessary I would use a four-furrow gang plough early in the season." Deep ploughing, especially when the trees are in full leaf, cuts off millions of those little feeding roots which take up soil nourishment, and which should not be disturbed at that season. These are of annual growth, and so small that they escape the notice of the ploughman, but it is these tiny root hairs that are essential to tree and plant growth, and not those great branching underground stems which serve merely to anchor the tree and enable it to stand against wind and storm.

WORK OF THESE ROOT HAIRS.

TO discuss these minute organisms the aid of a pocket magnifier is needed. They form in the growing season in great numbers, developing just behind the root

tips. They are so delicate and easily broken that the soil about them needs to be removed most carefully, which can the easier be done if it is sandy; then with the glass these silky light root hairs may be seen filling the fine pores of the soil or enveloping its particles.

FIG. 2575. ROOT HAIRS.
I. Roots of a young wheat plant.
(a) The sand surrounded by root hairs.
(b) Root tips.
II. Turnip Seedling showing root hairs.
(After Frank and Tschirch.)

The principal function of these root hairs is to absorb water from the soil and the plant food it contains; and as the plant grows these multiply with such rapidity that they wonderfully increase the absorbing surface of the roots. Each of these rootlets is but a single plant cell filled with that element of plant life called protoplasm; and, besides absorbing the moisture from the soil, they have the wonderful faculty of so dissolving much of the mineral matter in the soil by their excretions as to render it available by the plant or tree. Our illustration is drawn by Frank and Tscirch from wheat and turnip root tips as they appeared under a microscope. They will help to give our readers a fair idea of these wonderful little root hairs.

A GOOD TOOL FOR THE ORCHARD.

THERE is no doubt that we in Ontario are still behind the times in respect to the tools used for orchard work. Many still cling to the old-fashioned square tooth harrow and the horse killer cultivator. About the best tool we have adopted is the disc harrow, which is certainly excellent; but for a large orchard which needs constant cultivation all these are too slow and cost too much money to operate, in these days of high wages; and we should economise labor by purchasing better implements if they can be had.

What tools do you use in the orchard? some one asked of Mr. Woodward. He replied that after the four-furrow plow in early spring, the only tool he used was the *smoothing harrow*. This was so called because the teeth could be set at any angle; he set them pointing backward at such an angle that they would not gather rubbish. Each section of this harrow was six feet wide, and he used three sections, thus covering eighteen feet of ground at a time with a team of three horses. He could cultivate twenty acres of orchard in half a day with this harrow. It is not, therefore, very expensive to go through the orchard once every week or ten days in this way, up to August 1st, at which time a cover crop should be sown and cultivation discontinued.

COVER CROPS.

HERE is one of the puzzles of the Ontario fruit grower, to know just what is the best cover crop to use in the orchard. We have tried crimson clover, but as a rule only a small portion of the seed grows, and the result is a cover so thin that it is of little use as winter protection. In one or two instances it has been a grand success, particularly in the pear orchard of Mr. D. J. McKinnon, Grimsby, on a dark, moderately heavy soil, well underdrained. Every year it has grown up thicker, and no more useful or more beautiful crop could be desired.

Rye has been used by a great many, but unless ploughed in very early in spring it

robs the soil of much moisture, and is difficult to plough under.

Woodward said he had tried rape, turnips, oats, rye, and other things, but had found the hairy vetch the best of all. He had given it three years' trial, and found it very hardy and afforded an excellent cover for winter protection. Besides, being a leguminous crop, it gathered nitrogen for the enriching of the soil. The only hindrance to its general use was the cost of the seed, which was 9 cents a pound, but he saw no reason it could not be grown in Canada and sold for less money.

It was quite a consolation to some of us when Mr. Woodward mentioned chickweed as a good cover crop—one that makes a perfect mat of protecting material against e winter's cold, catches the leaves so they are not blown away by the wind, and affords a large quantity of humus when ploughed n-der in spring. Many of us had been looking upon this as a most troublesome weed that would grow up late in the fall when the fruit harvest prevented its destruction, and gave the orchard an appearance of being uncultivated. Henceforth then are we to encourage the growth of chickweed in the orchard?

OVERDOSE OF NITROGEN POSSIBLE.

POWELL (Representative N. J. Hort. Society, 1902) thinks there is a limit beyond which it may not be wise to sow clover in an orchard. He believes it possible to give too much nitrogen to the soil, and advises that, after three years of crimson clover in an orchard, a crop of rye or of some other non-leguminous crop should be sown. He thinks too much nitrogen tends to make lighter colored fruit and to lessen its keeping qualities. We should be glad to have further light upon this point, which so far as we know has not been so stated by any other authority.

What do you think of oats as a cover crop?

Oats, said Mr. Woodward, are excellent, but I would advise sowing rye with the oats, for they would remain alive through the winter. The hairy vetch was, in his opinion, the best cover crop, because it takes easily and forms a complete winter protection. He advised sowing five pounds per acre.

QUANTITY OF SEED PER ACRE.

FOR cover crops the following quantities of seed are recommended: Buckwheat, 1 bush.; crimson clover, 8 to 16 lbs.; corn, 2½ to 3 bush.; cow pea, 2 bush.; oats, 2½ to 3 bush.; peas, 2 to 3 bush.; rye, 1½ to 2½ bush.; vetch, 1 bush.

VARIETIES OF PEARS.

THE DUCHESS.

"I AM losing faith in the Duchess dwarf pear," said Mr. Woodward. His reason was that of late it grew knotty, uneven and inferior in quality. He had given it the same treatment as has been advised above for the plum, giving shallow cultivation, careful spraying and fertilizers, only less stable manure and more potash and phosphoric acid. Still it did not succeed as well as formerly, and this spring he had cut off the heads of a good many of his trees, hoping thereby to secure finer fruit. But even if first class, the markets do not call for it as formerly.

We have noticed this same difficulty at Maplehurst with the Duchess, and this spring we have cut at least two feet off the tops of our Duchess trees, hoping thereby to secure better growth of tree and consequently more perfect fruit. We notice too a poor demand for this fine pear in our home markets; indeed, for almost any pear. It would seem as if our markets are too limited to take the quantities produced, and that our only hope is in export. For this the Duch-

ess is one of our best, for it carries well, is large in size, and very good in quality.

THE BOSC.

Here is a pear that is worth attention, and Mr. Woodward finds that it succeeds well top worked on Duchess bodies, becoming quite productive. It is a pear that is wanted in the markets, will ship grandly, and give good satisfaction for export. It is a poor grower, and for that reason needs to be top worked on some better growing variety, such possibly as the Kieffer. On the quince it is a failure, and therefore it is useless to plant as a dwarf.

THE LAWRENCE AND OTHERS.

Here is a pear that is wanted in the home garden, for it is uniformly excellent in quality, ripens easily, and is unexcelled as a December table pear. It is too bad that it is not more in demand in the market, but it seems to be little appreciated, and therefore not profitable.

The Anjou is first-class, but will not hang on the trees long enough; and the Clairgeau is large and beautiful, but not good enough in quality to be very highly commended.

SMALL SIZED FRUIT FARMS BEST.

EVERY year we are more convinced that many of our Ontario fruit growers are trying to cultivate too much land for their capital. To buy the trees, plant, cultivate, spray and prune them for ten or fifteen years, until they begin to give a proportional income, means an expenditure of $200 or $300 per acre, and this added to the first cost of the land, means a greater investment than the average man dreams of. Instead, therefore, of attempting to plant one hundred acres in fruit, and starve for ten of fifteen years while it comes into bearing, it is wiser for the man with limited capital to begin with ten, fifteen, or twenty acres, according to his ability, and give the best cultivation to this area. The usual farming methods in Ontario agriculture will not answer; he must treat his orchard as a large garden, and while adopting horse cultivation, and economical methods, he must give in the most intensive cultivation and the closest attention if he would really make a good percentage on his investment, in addition to his annual expenses. W. H. Covert, of Grand Forks, B. C., has a fruit ranch of 11,000 trees, of apples, pears, prunes, peaches, plums and cherries, but he does not manage it as a whole, but in sections; probably this is the only way he can make so large an orchard give paying returns. He says:

The tendency of the times is to cut the large tracts of land up into small plots. This system I have strongly advocated, and have myself subdivided my property into five and ten-acre lots. There has been a considerable influx of people desirous of engaging in diversified farming during the past year, and as the possibilities of the valley become better known on the outside, it will rapidly fill up. In my opinion no section of the province offers better opportunities for fruit growing than the Kettle River Valley, and a 10-acre plot is quite sufficient to maintain a family and give a good livelihood.

PLANT MIXED ORCHARDS.

SINCE it has become evident that certain varieties of apples are more in demand than others, as well as more productive, it has been the custom to advise planting large blocks of a single variety. In consequence we have very large orchards of Baldwin apples, for example; but when the trees reached bearing age, and then continued barren for many years, the owners became disgusted and set to work to dig out these magnificent trees because they were wholly unremunerative.

Gradually we are solving the problem and coming to an understanding of the difficulty. We find, from the results of careful experiments, that nearly all varieties of apples are unproductive unless their blossoms are fertilized by the pollen of other varieties, brought to them by the bees, which are far more re-

liable agents in carrying pollen than the prevailing winds. Waugh (Vermont Sta., Rept. 1900) covered with muslin sacks 2,500 Baldwin blossoms, from 10 to 30 being covered by each sack. These blossoms were therefore safely protected from the visits of insects and from all foreign pollen. The result was that only three apples set out of all these blossoms.

The practical conclusion is that *large blocks* of a single variety should never be planted, but always two or more varieties in alternating rows. In case of established orchards, the mistake can easily be remedied by top grafting another good variety here and there upon the trees.

FANCY FRUIT NEVER A GLUT.

SOME people always see gloomy prospects and glutted markets; they always look on the dark side of everything and seem never to catch even a glimpse to the silver edging of a cloud. We do, indeed, find our markets at times over supplied with certain fruits, but if we look into the conditions we find either that the fruit was poor or that it was badly distributed. Perhaps one market was receiving three-fourths of the shipments from our Canadian growers, and hundreds of smaller markets throughout Ontario were almost bare of supply.

We do not believe that too much really high grade fruit, of good shipping quality, can be grown. There is an axiom about this which we believe will hold good, viz., that "the more GOOD fruit put into a market the greater will be the consumption and the better the prices in the end," while no doubt the reverse of this statement is equally true. The fact is that when people cannot get good apples, for example, they will look out for choice fruits of other kinds, whether fresh or preserved, to take their place, and so on throughout the chapter.

The moral then is plain—grow only fancy high grade fruit, and place such goods only on the markets, and the chances are that we shall seldom see a glut, unless it be of overripe fruit that must be hurriedly disposed of.

WATERING SEEDS IN BOXES.

WHEN seeds are planted in boxes in the house there is great danger that in watering the earth the seeds will be washed out. This is particularly the case if the seeds are small and but lightly covered, as is the case with pansy seeds, and many others. A good plan for watering such seed boxes is shown in the cut. A piece of cotton cloth is laid smoothly over the soil and the water poured upon that, when it spreads out all over the surface of the cloth and gently soaks into the soil. As much or as little water can in this way be added to the soil as may be desired, and the earth will not be disturbed in the least.—*American Agriculturist.*

FIG. 2576. WATERING SEEDS IN BOXES.

THE BUD MOTH

(TMETOCERA OCELLANA.)

EARLY in spring, just as they commence to swell and open, the buds of the apple, pear, plum, cherry, quince and peach trees are sometimes attacked by a small, naked caterpillar about one-fifth of an inch long and dirty white in color. The head and thoracic shield are black or very dark brown. These caterpillars voraciously devour the opening buds and later feed on the tender leaves, binding several of them together at the end of a shoot. In this nest the caterpillar lives and feeds, after a time attaining half an inch in size. Specimens sent us from Bad Axe, Mich., and placed in breeding cages, became full-grown about June 1. On June 15 they pupated inside the nest of leaves. On June 28 they commenced to emerge as ashy-grey winged months, expanding about three-fifths of an inch from tip to tip of their wings. This delicate little moth (Fig. 2577) is very prettily marked near the centre of each fore wing with a large, ill-defined creamy spot, while the base and tip of the wing are marked with black and dull blue. The hind wings and the abdomen are grey. According to Professor Slingerland,* the moths lay their eggs three or four days after emerging, usually on the under side of the leaves. They are described by him as transparent, flat, dish-like bodies, oval and very small. The egg stage is said to last from seven to ten days. The little caterpillars immediately commence to eat the outer coverings of the leaves, usually on the under side, leaving the skeleton of veins untouched. The young larvæ spin a delicate tube of silk, in which they live. When they are grown to about one-fifth of an inch in length they spin a tube in some protected place on the bark, and in this pass the winter. In the spring they come out and attack the bark as described.

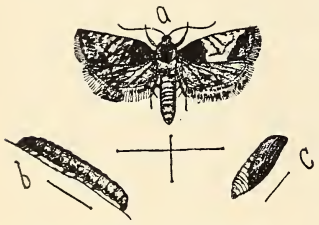

FIG. 2577. BUD MOTH.

REMEDIES.

The bud-moth may be destroyed most easily at the time when it first attacks the buds in spring. Prof. Slingerland says:

"Undoubtedly it can be checked somewhat by spraying in July, when the larvæ are at work on the under side of the leaves, but the time to combat the pest most profitably and successfully is in the spring when a little poison can easily be sprayed upon the opening buds; and thus the little larvæ, hungry from its long winter's fast, will be quite certain to get the fatal dose at its first meal."

This spraying should be repeated several times, as the period during which the insects can be reached is a short one, and they do not all come out together. The opening buds should be kept thoroughly poisoned, and the trees should be sprayed once or twice after the blossoms fall.—*Mich. Exp. Station.*

THE NEED OF HIGH CULTURE.

WE cannot obtain good fruit that will have shipping and keeping qualities from trees that are trying to produce in an impoverished soil. Not only should thorough cultivation be given to soil in orchards, but the soil may need the application of some fertilizer. If there is a deficiency of mineral elements, fruit will have poor shipping and keeping quality. Light soils are usually deficient in potash and phosphates, while heavy or clay soils may have an abundance of these. For this reason apples grown on light soils should be sent to our home markets, while those grown upon clay soil can be shipped with greater safety to foreign and distant markets.

Another very important factor in long keeping of fruit is a perfect and healthy foliage upon trees. It is the function of the foliage to elaborate the food that goes to the building up of vigorous growth of tree and branch, to the development of the fruit bud. If the leaves are eaten and mutilated by insects or diseased by fungous attack, there can be only an imperfect development of fruit that will be deficient in color and flavor, that will slack in the box or barrel and will not hold or keep long in the market.

New York. GEO. T. POWELL.

APPLES IN STORAGE.

Mr. Walter Snyder, president National Apple Shippers Association of the United States, states that on the 1st of December, 1902, there were in cold and common storage in the United States 4,364,800 barrels of apples, and in Canada 470,000, making a grand total of 4,838,800. Surely the result of the cold storage system will be an evening up of the supply during the whole year, so that the prices will be much more steady.

APPLE SCAB.

SIR.—I would like to obtain information from practical experience on the use of Carbonate of Soda for apple scab, also Hyposulphite of Soda.

1. Which of these would be the best and safest to use?
2. The quantities to use in solution with water?
3. Will this injure foliage?

This information will be very thankfully received through our Horticulturist.

Stoney Creek. W. C. WEBSTER.

1st. Neither carbonate of soda nor hyposulphite of soda are at all reliable remedies for the apple scab. Of the two the hyposulphite of soda has the greater fungicidal value, and is a safer solution to use.

2nd. The carbonate of soda solution, which is sometimes used as an insecticide, but only upon dormant wood against borers and scale insects, is made by dissolving one-half pound of washing soda in two gallons of water. It is very probable that by weakening the solution the caustic action upon the foliage will be reduced, but I have never seen it recommended as a fungicide. The hyposulphite of soda solution is made by dissolving one pound in ten to twenty gallons of water. This solution has been somewhat thoroughly tested with but unsatisfactory results.

3rd. The carbonate of soda (one-half pound to two gallons of water) has a strong caustic action upon leaves, and should be used, as I have before stated, only upon dormant wood. The hyposulphite of soda, of the strength given above, is not injurious to the foliage.

O. A. C., Guelph. W. LOCHHEAD.

SCALE INSECTS IN GREENHOUSES

BY

PROF. W. LOCHHEAD,

OF THE BIOLOGICAL DEPT. O. A. C., GUELPH.

MOST PERSONS who have ever attempted to grow the larger house plants, such as crotons, oleanders, lemons, date palms, ferns and acalyphs, which find their habitat in tropical regions, have no doubt felt frequently aggrieved on account of the presence of soft insects which do considerable harm. These soft insects are very diverse in character, some of them having a mealy appearance, while others are quite scale-like. The crotons and the Oleanders are especially troubled with the mealy-bugs, while the lemons and ferns harbor a species of a soft scale called lecanium.

There are usually two species of the mealy-bugs common in greenhouses, the *destructive* and the *long-threaded*. Unlike most scale insects, they can move about the plant somewhat freely. It is only when they become mature that they secrete he cottony sack which is so characteristic of them. Within this cottony sack are deposited the cream-colored eggs, which in a short time hatch out the young mealy-bugs. Fig. 2578 shows clearly the appearance of these two mealy-bugs. With regard to remedial treatment, probably the best method of dealing with these insects is to wash the plants with a soap solution, or to dip the entire plant in the solution, if such is practicable. In either case the plant should be drenched with clear cold water to wash off the solution. Another remedy which has been highly commended is an alcoholic extract of Persian insect powder. This is made as follows: Alcohol, ½ pint; insect powder, 2 ounces. These are allowed to stand for about a week, then filtered and diluted with an equal quantity of water. The solution is then applied with an atomizer. It will be necessary in most cases to repeat the treatment.

Mealy-bugs require about six weeks to complete their life circle, that is, from the eggs of one generation to the eggs of the

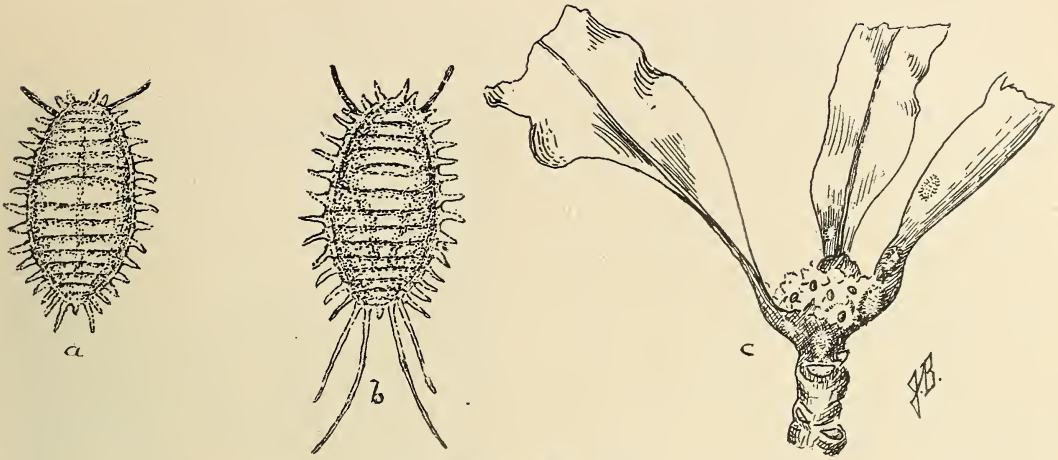

FIG. 2578. MEALY BUGS.
(a) Destructive Mealy-bug ; (b) Long-threaded Mealy-bug ; (c) Eggs in Cottony Sacks.

next. The soft scales, or lecaniums, are frequently quite troublesome to greenhouse and indoor plants. They may be readily recognized by their oval-shaped bodies. Most of them are oviparous, that is, egg-layers. The eggs are produced in large numbers under the scale. Perhaps the most common lecanium of the greenhouse is the oleander scale (lecanium oleæ). Fig. 2579 shows the form of the scale and the way the

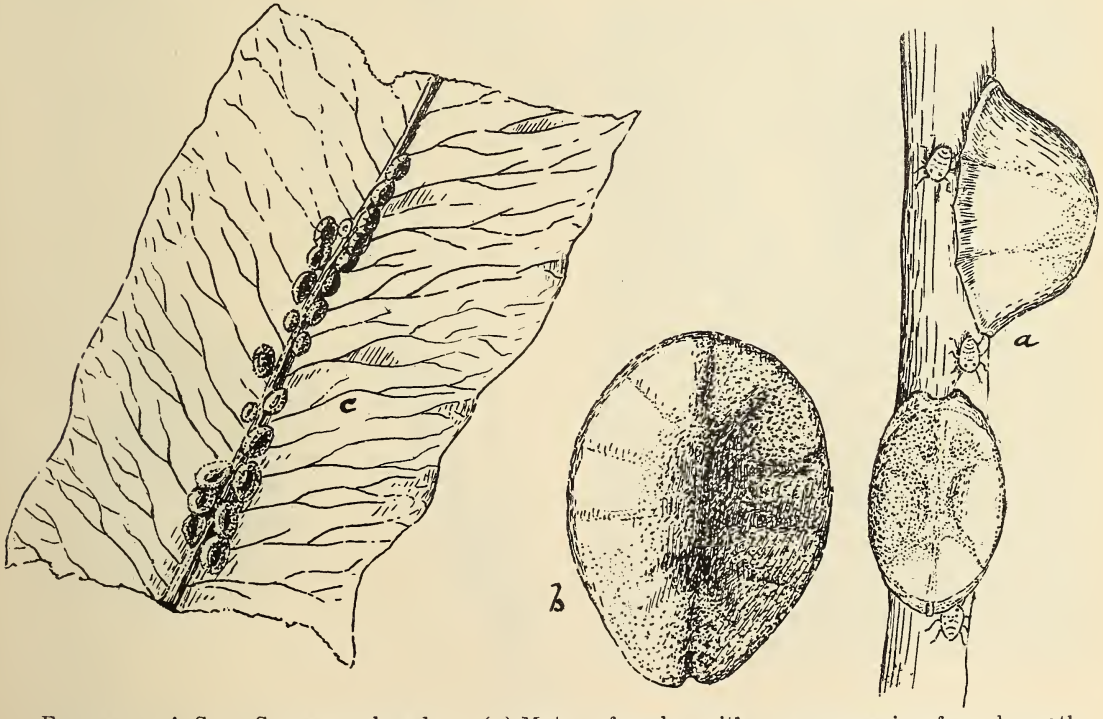

FIG. 2579. A SOFT SCALE on oleander. (a) Mature females with young escaping from beneath scale; (b) flat male scale; (c) arrangement of scales along mid-rib of leaf.

scales are arranged on oleander leaves.

Lecaniums are also frequently found on indoor ferns, on oranges, on lemon plants, and on acalyphs, which resemble the oleander scale to a large extent, but are referred to different species, such as the *hemispherical scale* and the *orange scale.*

The treatment for the soft scales is similar to that used against the mealy-bugs. Small plants are often dipped in soap or tobacco solutions. The most certain remedy is the hydrocyanic acid gas treatment, similar to the method adopted in the nurseries against the San Jose scale. A special compartment is necessary for this work, and special precautions must be taken with regard to quantities used and against possible poisoning. The writer will be pleased to give full directions to anyone who would like to try this method.

Among the armored scales which infest greenhouse plants are the Florida red scale (aspidiotus ficus), and Bouche's scale (aspidiotus hederæ, or nerii). Fig. 2580 shows the form of the scales. The former scale is nearly circular in outline, about 1-25 inch in diameter, and dark brown in color. The latter is not so circular, and is white. It is found on a large number of green house plants, such as oleanders, cycas, yucca, acacia, etc.

With these scales the treatment with soap or tobacco solutions is to be commended. Repetition is necessary, and when the plants are dipped they should be rinsed afterwards with clear water.

There are many other scales which are usually found in every large greenhouse containing tropical plants, but enough has probably been said to draw the attention of the owners to the commoner scales and to the best methods of treatment.

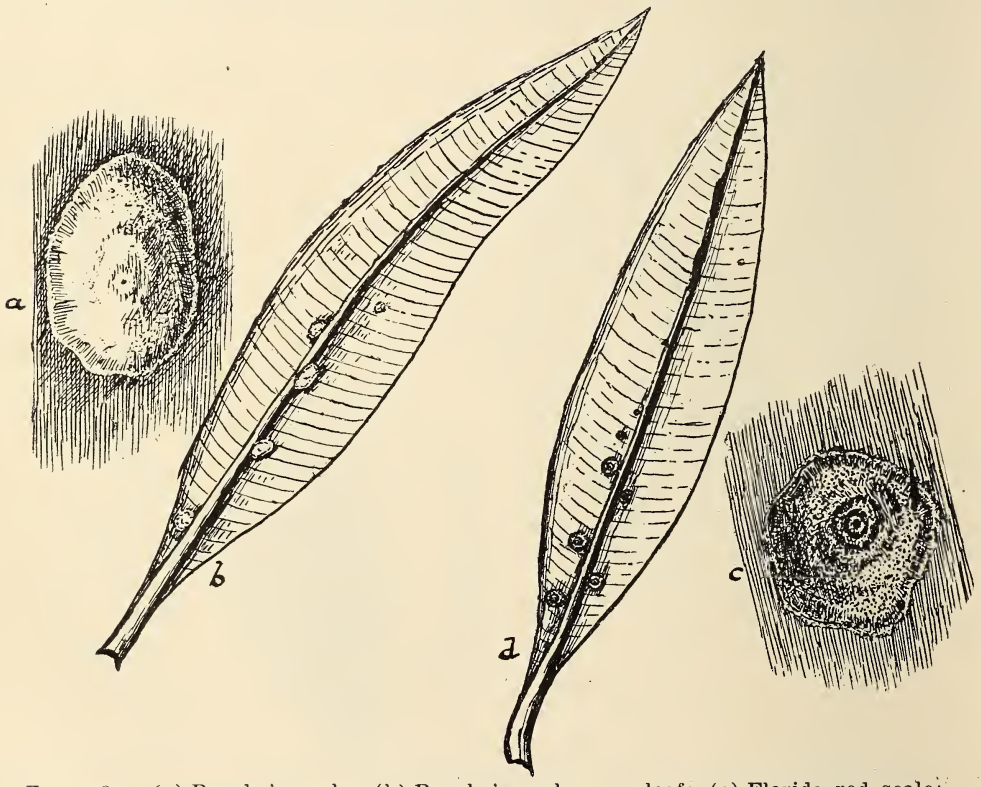

FIG. 2580. (a) Bouche's scale; (b) Bouche's scale on a leaf; (c) Florida red scale; (d) Florida red scale on a leaf.

HYBRID REX BEGONIAS

FIG. 2581. BERTHA MCGREGOR.
(Hybrid Rex.)

THE new hybrid Rex Begonias of recent introduction are certainly quite an acquisition and improvement on the true and original type of Rex Begonias, more especially for window gardening. The new hybrid Rex have quite a dash of the shrubby begonia type in them, the habit of growth, form of foliage, as well as the more glabrous or glossy surface of their leaves, show most decidedly the characteristics of Begonia Diadema, a favorite shrubby begonia still with many plant growers.

The variety, Bertha McGregor (Fig. 2581), is a splendid variety for the window, and shows strong traces of Begonia Diadema parentage, its leaves being deeply cut and very similarly marked to Begonia Diadema. Begonia Mrs. A. G. Shepherd is another showy easy grown variety, the centre of its large glossy leaves being of a bright silvery grey, beautifully margined with an emerald bronze-shaded green, with distinctive white spots dotted here and there. (Fig. 2582).

But the gem of all, in my opinion, is the variety known as Lady Annesley (Fig. 2583). Its delicately cut and sharply pointed leaves that glimmer and glisten like frosted silver, with a soft sheen of pink scarcely perceptible on the silvery ground color, together with the delicate tracings of reddish green leaf veins and leaf stem, are features that make this variety pleasingly conspicuous amongst the many beautiful varieties of the Rex Begonia. All of these begonias mentioned have the upright habit of the shrubby begonia, and are easier grown than most of the rough or

FIG. 2582. MRS. A. G. SHEPHERD.
(Hybrid Rex).

hirsute leaved varieties of the true Rex Begonia. These varieties propagate from the leaves (or sections of the leaves), similar to the Rex Begonia, and are not as liable to suffer from leaf rot in winter time as the rougher leaved varieties are. The illustrations, as shown, give a very true idea of the form and color of these comparatively new varieties of this interesting class of begonias. —*Wm. Hunt, O. A. C., Guelph.*

THE PÆONIA belongs to the vast family or natural order of ranunculacæ, among which are found many plants of medicinal value. The pæonia is a hardy, perennial plant, a native of Europe, northern and temperate parts of Asia, northwestern America, China and Japan, so you can see it is an accommodating plant to nearly all tolerably cold climates. The situation should be remembered at the time of planting, for the cooler the situation the better will be the quality of the flowers, and the longer the season of flowering. It is only within the last twenty or thirty years that this now becoming popular flower has been considered of much intrinsic value, excepting as an early, summer-flowering plant for the herbaceous border.

FIG. 2583. LADY ANNESLEY. (Hybrid Rex).

OTTAWA CHILDREN'S EXHIBIT.

FOR a number of years the Ottawa Horticultural Society has considered that some effort should be made to interest the school children of the city in the cultivation of flowers, and instill them with a greater love for nature. Owing, however, to the small government grant which the society receives, nothing has been done up to the present, but this year the children will be given an opportunity to show how well they can grow flowers.

Mr. R. B. Whyte, late president of the society, offered at the directors' meeting Saturday night to give special prizes to school children for flowers grown from aster seeds, which he would provide, if the directors would give space for the exhibits during the September show and provide judges. The directors readily agreed to the plan.

MR. WHYTE'S PLAN.

Mr. Whyte's scheme is to furnish ten children in each fourth form in the city with three packets of seed, each containing two hundred seeds, one white, the other two mixed of different varieties. The children are to show a certain number of blooms of each variety at the September show. Four prizes are offered for each variety, making twelve prizes in all. The first prize is $2

and eighty gladiolus bulbs; second prize, $1.50 and sixty gladiolus bulbs; third prize, $ and fifty gladiolus bulbs; fourth prize, 50c. and thirty gladiolus bulbs. The prizes amount to $15 in money and 660 gladiolus bulbs of Groff's best mixture. This generous offer of Mr. Whyte, it is considered, will create greater interest amongst the school children in the cultivation and study of plants and have an educational effect.

Ald. Ellis also gave a number of special prizes for sweet peas, to be shown in August. These prizes are for the members of the society who have never won a prize in sweet peas at any previous show of the society.

CIVIC BETTERMENT AT ST. LOUIS

IN speaking of civic betterment it is impossible to ignore St. Louis for more than a few months at a time. The energy, persistence and fertility of resource displayed by the young civic league of that city is remarkable. While keeping free from politics, this organization has for its object "to unite the efforts of all citizens who want to make St. Louis a good place in which to live." Its success is shown by its growth. Organized about ten months ago with 100 members, it has to-day nearly 2,000 members. Its accomplishments have already been many.

The league first used its influence toward having a bill passed removing the exposition building from a public park in order that the new Carnegie library might be placed there. St. Louis has no free public baths. The improvement league built three, in conjunction with playgrounds, and gave 14,665 poor children baths during last summer. The baths proved so popular that the city itself will build five in a very short time. The league has succeeded in having the present bill-board ordinances lived up to, whenever new boards were erected, and to having many old bill-boards rebuilt. A grand boulevard and park system is being planned.

The president of the Civic Improvement League was made chairman of the commission by the mayor in appreciation of he good work of the league. This commission is about ready to report. The league was an active factor in the "keep our city clean" movement last summer, and distributed many thousand bulletins, giving all the city ordinances relating to that subject, for the information of citizens ignorant of their own personal responsibilities in such a movement. A special sanitary committee has followed up the movement, and encouraging results have been reached. Reports are made to the health department whenever garbage is not properly removed. The league sent a special representative to other cities to investigate the employment of women as sanitary inspectors. The report was so impressive that the city authorities are making arrangements to employ women sanitary and tenement house inspectors. The matter of keeping waste paper off the streets has been given attention. Sample waste-paper boxes have been put out with the league's name on them. The latest triumph of this hustling betterment organization is the appointment by the health commissioner, at its suggestion, of a woman sanitary inspector. Dr. Mary Tucker, the new official, will teach families in the crowded districts the need of clean homes and clean streets.—*Home and Flowers.*

BULBS AND BULBOUS PLANTS

THIS was the subject of a very valuable address by Mr. R. B. Whyte, of Ottawa, before the Hamilton Horticultural Society on Monday evening, March 6th. After the reading of the minutes, pads and pencils were distributed for the convenience of those wishing to take notes or to ask questions, and points of individual experience called for.

In Mr. Whyte we certainly have a model amateur gardener, for he has been growing flowers, and bulbous plants in particular, for twenty-five years past, and all purely out of his love for them. Truly in him and Mr. A. Alexander, of Hamilton, who from a child has loved and cultivated flowers and spends his morning and evening hours even yet in their cultivation, we have amateurs superior to many who claim to be professionals. Mr. Whyte has a large retail business in Ottawa requiring his close attention from 8.30 in the morning to 6 p. m., and yet he finds two hours a day, from 6 to 8 a. m., to give to his favorites in the garden.

WHEN TO PLANT.

After showing from samples, what really constituted a bulb, and how in it was stored up nourishment for most rapid growth in spring, Mr. Whyte divided the bulbous plants as follows:

(1) Those that must be planted in the fall, in order to have their roots established for their rapid development in early spring, such as snowdrop, crocus, scilla, chionodoxa, tulip, narcissus, hyacinth, fritillaria, etc.

(2) Those that may be planted in fall or spring, as lily, pæonia, iris, hemerocallis, funkia, for they do not shoot up so rapidly, and give time for root development in spring; only in that case being later in blooming.

(3) Those that can be planted in spring only, as gladiolus, tigrida, montbretia, caladium, oxalis and canna, for there are too tender to be left in the ground through the winter.

Mr. Whyte favored early planting in the fall for Ottawa; sometimes between the middle of September and the middle of October he considered much better than later, in order to secure good root development before winter.

WHAT TO PLANT.

For very early bloom we must never omit the snowdrop, the crocus, the scilla and chionodoxa. In planting crocuses Mr. Whyte would plant mixed colors together in masses. A good broad band eight or ten inches wide along the border of the lawn would show up well. But of all the spring flowering bulbs he singled out the narcissus as the most elegant and beautiful. It was far superior to the tulip, which is almost the only bulb planted by the gardener in Gore Park at Hamilton, and he could not understand why it was so studiously omitted.

Of seventy-five varieties of narcissus grown by Mr. Whyte, the finest is the Emperor.

The following is a list of the more desirable kinds for Ontario:

1. Coffee Cup Narcissi:—Emperor, Golden Spur, Yellow Horsfieldi, Bicolor grandis, Princeps.

2. Tea Cup Narcissi:—Sir Watkin, Barri conspicuous, Cynosure.

3. Tea Saucer Narcissi—Poeticus, P. ornatus, Biflorus.

BEST TULIPS.

Being asked to give a list of the best varieties of tulips for the amateur's garlen, Mr. Whyte gave the following:

Early Single Tulips:—(White) Joost van Vondell; (rose and White), College Maid;

(crimson and white), Joost van Vondell; (red and yellow), Keizer Kroon; (violet and Vin csomev: irhave, fe daddb or thedm red), Proserpina; (cardinal), Coleur de Cardinal; (blush), Marianne; (carmine and white), Le Matelas; (red and orange), Parma; (scarlet), Brilliant.

Late Single Tulips:—(Carmine and yellow), Macrospila; (yellow), Bouton d'Or; (scarlet and blue), Gesneriana; (yellow and red), Yellow Crown; (scarlet), Elegans; (rose and white), Rosalind.

Early Double:—G. Solis, Rex Rubrorum, Yellow Rose, Purple Crown.

Late Double:—Red Crown, Salamander.

BEST LILIES IN ORDER OF BLOOMING.

Umbellatum, Croceum, Citrinum, Tenuifolium, Excelsum, Browni, Candidum, Superbum, Longiflorum, Auratum, Tigrinum, Speciosum.

We might extend these lists indefinitely, but these are perhaps the ones of greatest general interest.

PLANNING AND PLANTING.

IN improving one's grounds the first thing to do is to prepare a definite plan. This should be drawn to a scale, and should show just where the paths are to be and the location of each group of flowering shrubs, trees, hardy perennials or bulbous plants. For a small yard house, where economy is necessary, one may do this for himself, but where an undertaking of any extent is proposed a landscape gardener should be consulted before setting to work.

SOME NECESSARY CONDITIONS

Mr. Wm. Hunt, of the O. A. C., Guelph, in addressing the Grimsby Horticultural Society recently, emphasized three important conditions necessary to a site desirable as a home, viz.: drainage, windbreaks, and a plentiful supply of pure water. Any one who has been unfortunate enough to place his house where it is surrounded with mud, and where the cellar fills with water in spring, will fully appreciate the importance of what he said.

THE LAWN.

The easiest method of securing a good lawn at the least expense in Mr. Hunt's opinion, was by seeding, using half a pound of seed to the square rod, and sowing in early spring. Preliminary to this the edges of the roadways and paths should first be laid with well cut sod, the borders planted with hardy perennials, and the trees and shrubs set as desired. The importance of a first-class lawn can hardly be estimated, and a poor one is a constant eyesore; indeed, it might be compared to a beautiful picture painted upon an ugly background.

ORNAMENTATION.

Vines, climbers, rockeries and rustic work are all useful in completing a lawn picture, while summer houses and rockeries may be employed with excellent effect. In Great Britain so much importance is attached to such adjuncts that men sometimes make the building of rockeries a profession and find themselves kept well employed.

On a small lot a straight walk to the front door is often best, but where possible a curve will add beauty as one advances, and increases interest.

OVERPLANTING.

The nursery or orchard style of planting a front lawn should be carefully avoided, and instead the shrubs should for the most part be disposed along the sides in a mixed border. Here may be planted hardy perennials, with a few such shrubs as hydrangea paniculata, Forsythia, Spirea, or Deutzia, making the border five or six feet in width.

HYDRANGEAS

WE have in general cultivation two classes of hydrangea. One hardy, so much so that it will stand the most severe northern winter without protection, and will grow wherever the lilac will; and that is saying a great deal for it, for we have come to consider the lilac an iron-clad plant. This class is chiefly represented by the variety catalogued and sold as H. paniculata grandiflora. The other class has several representatives, the most prominent of which is otaska. This is a Japanese variety, of wonderful merit, popular with all who undertake its cultivation, because of its great floriferousness, and, probably, the favorite of all large-growing, shrubby plants for porch and veranda decoration during summer. Being too tender to withstand the rigor of our northern winters, it is necessary to house it from the cold by giving it a place in the cellar or a cold-storage building about the first of November. There are several varieties quite similar in general habit, but this one easily takes the lead.

The hardy hydrangea is a shrub having many merits. It grows well in any ordinary soil, but in order to do itself justice it should be given rich earth and encouraged to make vigorous development. When properly fed and well cared for generally it will grow to a height of six or seven feet, with a proportionate spread of branches from the ground up. As it branches freely, and each branch as a general thing bears a cluster of blossoms, the effect produced by a well-grown specimen is very ornamental, and especially so because of the enormous size of its flower clusters. These are sometimes more than a foot across, and often nearly that in length. When they first open the flowers are a creamy white. They afterward become ivory in tint, and change toward the last to a dull pink tinged with green. They last for many weeks—indeed, until the coming of winter. They appear in early September, therefore it will be readily understood that in this shrub we have one that is at its best during the late fall when other shrubs are flowerless. This habit of late flowering is one of its chief merits.

It can be grown as a single specimen with good effect if properly trained, but it is most effective when grouped. Set from half a dozen to a dozen plants together, according to the size of the space you wish to fill, and you get from them a great mass of foliage against which their enormous clusters of bloom will be displayed most strikingly. In grouping this shrub set the plants about two feet apart each way. When they have begun to grow cut away the greater share of the old top and encourage them to push shoots from the base. To grow them as standards defeats the effect you aim at in grouping them, to a great extent, as you want them to branch low and form a mass of branches close to the ground. Every spring go over the bushes and cut them back well. Shorten every branch in order to induce a vigorous new growth, upon which you must depend for flowers. At the same time manure the soil well, working it in well about the roots of the plants. After plants become old it is a good plan to remove nearly all the old branches and let them renew themselves. This can be done from time to time and old bushes be made as vigorous as new ones. The roots never seem to lose their vitality, therefore they can be depended on to produce new and healthy tops whenever there is a demand for them.

For hedges of an ornamental character in the home grounds this plant deserves especial notice. By pruning we can make it compact and keep it of any size to suit us. To make a good hedge of it set two rows of plants eighteen inches apart, so setting them that the plants do not come opposite in the rows. Treat as advised for groups, but prune more closely, unless you desire a large hedge. If allowed to grow to suit them-

selves the plants will be more pleasing than they are likely to be when closely clipped, as they will have less formality.

This shrub should preferably be set in spring, though fall planting can be done if necessary, without any risk of losing the plants. Spring-set plants get a better and earlier start.

If a standard is desired for some prominent place on the lawn, select for the purpose a strong, well-rooted plant. Cut away all but one shoot, and do not allow this to branch until it has reached the height where you desire the head of your little tree to be. Then nip off the end of it. This will induce branching below. Allow only five or six branches near the top to grow. In this way you secure a foundation for the body of your plant.

Hydrangea otaska is grown from cuttings. The most satisfactory method of securing a plant is to purchase a young one from the florist. Pot it in rich loam, and give it plenty of water when growing. It will generally make its strongest growth during the early part of the season, though it grows more or less all summer. Small plants not more than six or eight inches in height often produce clusters of flowers larger than the pot they are growing in. But if you want a large plant with which to decorate your porch discourage early blooming and force the plant to throw all its energies into the production of branches. If ot allowed to bloom it will grow vigorously, but if a small plant is permitted to develop flowers you can not expect much else from it that season. Better postpone flowering until you have formed a strong plant with at least a dozen branches, each of which ought to give you a cluster of blossoms next season. Make the soil strong and rich, and keep is so as long as growth is going on. See that the plant never gets dry at the roots. As a general things buds are formed soon after growth begins. These develop into flowers along about midsummer—sometimes earlier—and they last until the time comes to put the plant in the cellar for winter, though in September they take on a reddish green look which is far less ornamental than the pink tints which characterize them while in their prime. To secure a fine specimen repot it whenever its roots fill the old pot, and keep on doing this until you have a plant of the size you desire. After that do not shift to a larger pot or tub, but depend on liquid fertilizers to keep it vigorous. Frequent cutting back has a tendency to thicken up a plant and make it compact. For example, we know a plant which is grown in a tub eighteen inches across, and goes into the cellar in November each year and remains there until March. Last season it had over two hundred flower clusters on it at one time. While in the cellar it is kept quite dry. Frequently it loses many of its old leaves, but no harm is done if this occurs. While in cold storage keep it as dormant as possible, thus imitating the process by which nature cares for deciduous plants out-of-doors during the winter. If kept in too warm a place, and especially one where there is considerable light, premature growth often sets in. This must be prevented if you want a strong plant. Keeping it dry at the roots discourages early growth, but a low temperature is also necessary, and the absence of light is quite desirable in order to secure complete dormancy.

Whatever pruning is done should be done early in spring before much growth is made. Cut away superfluous branches and all weak ones, and shorten those which have outgrown others, until you have brought e plant to symmetrical shape. If repotting is to be done, do it then. If your plant has reached the limit of root room which you feel disposed to give it, apply whatever fertilizer you prefer as soon as active growth begins, *but not before.* Some persons do their pruning after the young branches have got well started.—*Home and Flowers.*

SOME FLOWER LEGENDS

BY

EDWARD TYRRELL, TORONO.

I HAVE intended for some time to send you occasionally some of the pieces of history I have picked up in my wanderings through books; but reading a piece in your February number on "The Care of Plants in the Window," in which the writer says "make friends with your plants, be on intimate terms with them," and this so harmonizing with my own ideas, I thought I would second his suggestion by giving some of the history of legends connected with plants which I have found, although to some they may be familiar.

The love of flowers is one of the universal sentiments. How pleasant it is to have some living object to tend or nurture, and which "though tongueless shall talk with you of days that are passed, of friends and kindred with whom it may be many happy hours were spent or sorrow shared," or historical events brought to remembrance. It is pleasant to imagine when looking upon our plants that they are a glad company of friends, each one with something interesting to tell, or have reveal to us, if we will only stop and listen—histories of men and events.

There is a little shrub, a species of bloom we see in the greenhouses and just now in bloom, which was one of the popular plants of the middle ages. Its modern Latin name is *Cytisus,* but its original name was Planta Genista. It has great beauties which cannot be overlooked; with its graceful habit and yellow flowers it attracts the attention of the most careless observer. The story in connection with this plant is: The Earl of Anjou, having committed a sin in connection with his church, was enjoined to make a pilgrimage to the Holy Land as penance. He went habited in lowly attire with a sprig of bloom in his hat to denote his humility. The expiation finished, he adopted the name of Plantagenet from Planta and Genista, hence the name of the Plantagenet family.

X. R. Santine gives us that beautiful story of "Picciola, or the Prison Flower," a book that has been translated into almost every known language, and which probably most of your contributors have read; if not, they should do so. It tells how the Count de Charney, a rich and highly accomplished gentleman, maddened by solitude, although his station and fortune afforded him every opportunity of surrounding himself with all that could gratify his desires or tastes, but he denied his Maker, and with the increasing anxieties of a troubled mind, and wrapped in his own self-sufficiency, esteemed by no one, joined the company of those who wished to subvert the order of government,

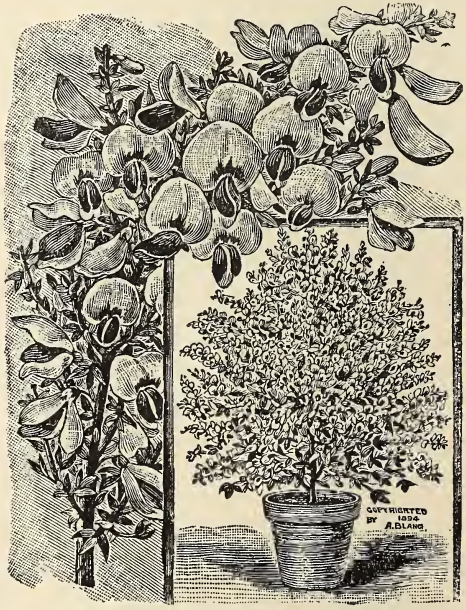

FIG 2584.

spoke words which caused his arrest, and while expiating his folly within the walls of a prison, a little flower springs up between the chinks of the stones in the court yard and became to him a messenger of love and mercy and his acknowledgment of God.

This plant is known to us as the wall-flower, and it is familiar to all. It was introduced in England in 1573, and is a native of the south of Europe, Egypt and Morocco. It does not appear to be a wild flower, and is, I believe, only found where men have lived or are living. It is the flower with which the romance writers embellish all their decaying battlements, falling towers, and monastic ruins. The English name refers to the habit of the plant as an inhabitant of walls and rocks. The Latin name, Cheiranthus-Cheiri, implies that it is in an especial manner a nosegay or handflower.

APHIDS OR PLANT LICE.

THEIR EGGS BEGIN TO HATCH WITH FIRST WARM WEATHER.

AMONG the very first insect eggs to hatch are those of the various species of aphis, or plant lice. These are among the most destructive and difficult to suppress of all insect pests, and where it is possible to prevent them from getting a start, measures to accomplish this should not be neglected. The eggs of aphidae are minute, oval, shining black bodies, that are to be found at the base of buds of various trees and shrubs, in many cases easily distinguishable by the naked eye. In some instances they are in dense clusters surrounding each bud, as in the case of the species infesting the "silver berry," a very ornamental shrub or small tree of the "false olive" family, while those found on the apple, plum, honeysuckle and other buds are more scattering. Some of these are even now hatching into the "stem mothers," which bring forth their young alive and ready to begin their sap-sucking at once, and which are the progenitors of innumerable generations in the course of the season.

Wherever these are noticed—and it is worth while to make careful observations on all trees and shrubby plants that are subject to such attacks—the kerosene emulsion spray cannot be brought into requisition any too soon. Fruit and flower buds are still too undeveloped to be injured by the application, and it is much easier to bring it in contact with the newly-hatched insects at his season than after the foliage has come out, among which they hide, and often curl the leaves to that no spray can be brought in contact with them.

ART OF JAPANESE GARDENERS.—A Japanese gardener does not strive after bright colors. His object is to counterfeit a natural scene as nearly as possible. He cheats your eye into a loss of all sense of perspective. By judiciously selecting his trees and keeping every object on a small scale he can make you imagine that his garden is very much longer than it is, and somehow he manages to deceive you as to its boundaries by artful arrangements of shrubs and stone work.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

EXECUTIVE BOARD.

THE Executive Board of the Canadian Civic Improvement League met in Engineer's club rooms, 96 King street west, Toronto, on the 16th inst., the rooms having been kindly granted the league for three months. The objects of the meeting, as defined in the secretary's letter, were to perfect the organization, and to arrange for the appointment of a field secretary, and to transact other important business.

VAST EXTENT OF THE WORK.

The vast extent of the work in hand was dwelt upon, covering as it does not only the improvement of our city streets and public parks, and the removal of the disfiguring bill boards; but also good roads and home sanitation. It should interest every one, whether doctor, lawyer, merchant or farmer, for it aims at the betterment of the conditions of living for us all, and the beautification of our surroundings.

—Galley 8. L

THE WOMEN SHOULD BE INTERESTED.

Major Ellis pointed out the fitness of women for the study of the aesthetic; they were naturally disposed to love the beautiful in nature and art, and had more time than men to devote to its advancement. In the American cities the ladies are taking a very prominent part in the work of civic improvement, and clubs are being formed in many places. Why should not such clubs be formed in every town in Ontario, even if only containing five or six members each? They could be a wonderful power for the advancement of this work.

A FIELD SECRETARY.

Mr. G. R. Patullo, of Woodstock, ably advocated the appointment of a field secretary, who could stir up public interest. He should be a man who understood landscape gardening, and who could give addresses in every town on Improvement Work. Such a man could form clubs everywhere, and these clubs would co-operate with this league.

Finally the title of Honorary Field Secretary was accepted by Mr. G. R. Patullo himself, who was generous enough to say that in his intended summer tour to the great Northwest he would be pleased to give addresses on Civic Improvement in the principal cities and encourage the formation of local improvement clubs.

WAYS AND MEANS.

A Committee of Ways and Means was appointed, with a quorum resident in the city of Toronto, and the following is the list of members, viz.: Major Ellis, H. F. Duck, H. P. Hynes, J. D. Hayden (the president), and Major H. J. Snelgrove (the secretary).

These gentlemen have a hand in the ques-

tion of finances, and we hope they may receive much encouragement. Besides this committee, the whole province was divided into five districts, with a member of the executive board representing each, who would be expected to do pioneer work in the meantime until the appointment of a regular field secretary. The following are the divisions:

Western district, represented by G. R. Patullo, Woodstock.

Niagara district, represented by Mr. R. Tasker Steele, Hamilton.

Toronto district, represented by Major Ellis, Toronto.

Midland district, represented by J. D. Hayden, Cobourg.

Eastern district, represented by Major Smallfield, Renfrew.

THE ORGAN OF CIVIC IMPROVEMENT.

The Board had under consideration the best means of publishing the proceedings and its literature, and it was unanimously agreed that the Canadian Horticulturist be made the organ of the League for Canada. Already much space has been given to this kind of work in this journal, and now it is proposed to make it a special feature, because the improvement of our homes, the beautifying of our cities, towns and villages, and attention to sanitary conditions, these subjects interest everybody.

Further, it is proposed to issue bulletins that can be distributed very freely and published in the various newspapers, the first to be written by the secretary, the second by Mr. G. R. Patullo, and the third by Mr. L. Woolverton.

A YEAR OF PROGRESS IN PARK MAKING.

On every side we hear news of advance along the lines of park making. In Chicago the Lincoln Park commissioners are preparing to spend from two to four millions of dollars on extensions and improvements; and the South Park commissioners are securing legislation to increase their powers and to improve their opportunities from Jackson Park almost to the mouth of the Chicago river. A boulevard to connect the north and south park systems, to cross the river by a commodious subway, is also under consideration. In Ontario we find Toronto and Hamilton both seeking to lay aside large areas of land in reserve for city parks, and soon we doubt not they will have plans prepared for an extensive and beautiful park system. Even the smaller towns, such as Brantford, Brampton and Walkerton, are securing land now to be made into parks as soon as public opinion warrants the expenditure.

ARBOR DAY.

Has not been kept in the schools in the manner that its importance deserves. Too often the only observance is a half-day tidying up the yard; and, even if it go so far as the planting of a few trees, the teachers do not sufficiently realize the higher end in view, that of directing the attention of the children upon outdoor beauty, and of teaching them how to use nature's material in improving the immediate surroundings of their homes and school houses.

RAILROAD PARKS.

Much of the work so far executed along the lines of our Grand Trunk and Canadian Pacific roads belong to the geometrical rather than to landscape gardening. While the lawns are pretty and well kept, the beds well planted and pretty, not the slightest effort has yet been made in any case that we have noticed toward unity of design or the making of the whole to harmonize into a picture. No attempt has been made to hide ugly views by appropriate grouping of trees, nor to add picturesqueness to the lawns by carefully disposed clumps of choice shrub-

bery; nor in any case have we noticed any effort made to make the place inviting to the waiting traveller by rustic or other seats in shady spots. On the other hand, the places are to be seen and not touched; they are guarded by ugly and forbidding palings, and woe betide the passenger who would dare to set foot inside! We commend the action of the Rio Grande Railroad in deciding to park nearly all of its stations in Colorado and Utah, and in placing this work in the hands of capable men to prepare suitable plans for the same.

PARK DEVELOPMENT.

It will take much time and much effort on the part of the members of our improvement clubs to educate public sentiment so far in favor of park development in Ontario, that the large sums required for the best work will be freely voted. Newark, N. J., has spent $938,000 for improvements to Branch Park, and $41,000 in improvements to East Side Park, besides similar amounts for many other parks in the same city. Toronto and Hamilton have as yet done very little in this direction.

THE HORTICULTURAL SOCIETIES.

I HAVE just completed a tour among the horticultural societies. My special mission was to point out to them the aim and purpose of the societies, the character of the work they are supposed to be engaged, and the results hoped for. I hope to contribute a series of articles to this department during the summer months, setting out in detail my conceptions of the work, and my experiences gained during the past few weeks. For the present I will only intimate that the purpose of the horticultural society is not to distribute seed potatoes nor any other work that properly belongs to the agricultural societies; but, on the contrary, to beautify the home, to purify home life, to promote a greater love of home by making it and its environments more attractive, and thereby lay the foundation of a patriotism worthy the land that we possess.

Nature has done much for us; we have a beauteous land, but as yet we are not doing much for ourselves with the natural advantages we possess. There is much work for the horticultural societies and the Civic Improvement League to do. Upon this, or these topics, I will dwell in detail later. I might suggest, however, as a good beginning, that the Civic Improvement League appoint a strong delegation to wait upon the great railway companies and request them to do something in the way of cleaning up their station grounds and freight yards. I may just here instance the pretty and progressive town of Orillia. The first impression the visitor gets of the town is exceedingly bad, all owing to the wretched disorder about the railway premises.

I must not forget that I promised several societies to give a list of hardy roses in this issue. Beginning with the dark shades, the following list will cover the range of colors: Baron de Bonstetten, Gen. Jacqueminot, Alfred Colomb, Lady Helen Stewart, Mad. Chas. Wood, Magna Charta, Francois Levet, Mrs. Sherman, Crawford, Common Moss, Crested Moss, Mad. Plantier, and the climbing Caroline Goodrich.

Mitchell. T. H. RACE.

A SIMPLE METHOD OF DISPOSING OF HOUSE SEWAGE FOR FARM HOMES.

A LINE OF IMPROVEMENT WORK.

BY

THE SANITARY INSPECTOR,

DEPT. OF PUBLIC WORKS, TORONTO.

IN these days of popular education, when the people throughout the Province have the benefit of free lectures in dairying, fruit growing, domestic science, etc., it is noteworthy that a knowledge of so important a subject and one so closely allied to the physical and moral welfare of the people as sanitary science is confined to a limited number.

True, the principles of the science is an open book to the medical profession, and is freely discussed at medical conventions, but these discussions are mainly reported in professional journals and do not reach the great mass of the people at all.

In the matter of public sanitation the question of effectually disposing of sewage in small towns and villages is one of the most important problems that has engaged the attention of scientific men. The great cost of a system of sewage as used in large places has rendered this course impracticable while the use of privy vaults and cess-pools has been found objectionable and dangerous. That there is a desire on the part of those living in towns and villages, as well as in less populated districts for what are known as the "Modern Conveniences" of the city is evidenced by the thousands of cess-pools in existence or being built for the purpose of hiding away far beneath the surface of the earth the various organic and liquid wastes from the private residence, public house or institution as the case may be.

Those in authority labor under the dangerous yet common delusion that "so long as the stuff is put down deep enough there is no danger," and herein lies one of the greatest causes of many of the diseases which at times are epidemic in whole communities, viz., the pollution of the water supply.

How is the water supply polluted by decaying organic matter buried deep under the surface of the earth?

In answer to this question a brief explanation of the existing physical conditions may be more convincing than bald assertions without the reasons being given therefor.

Over the whole surface of the earth, where vegetation is possible, nature has provided a most wonderful scavenger system, composed of millions of little workers to the cubic foot; these little workers are known as microbes, other species are also found in vast numbers in the water and air.

The natural functions of many of these microbes tend to produce one result, viz., purification, and when one comprehends that both the sun and air are essential to the life of the various species of microbes which are necessary to the proper decomposition of waste matter, it will be unnecessary to state that in the deep sub-soil where both are impossible, microbe life cannot exist, and hence it is stated that instead of being converted into life-producing matter at the surface of the earth, with its dangerous properties destroyed, organic matter is allowed to decay and putrify in the deep dead earth until it is washed into some near by well or stream, there to cause the innumerable ills produced by drinking impure water.

It may be said that wells are too far removed from cess-pools to be in any danger from this source, but the experience of the village of Lawson, near Basle, in Switzer-

land, will be sufficient to controvert any assertion to that effect.

In the village referred to, which has not within the memory of man been visited by epidemic typhoid, and in which not a single case had occurred for many years, there broke out in the year 1882 an epidemic which simultaneously attacked a large portion of the inhabitants.

About a mile from Lawson, and separated from it by the mountainous ridge of the Stockhalden, which was probably an old moraine of the glacial epoch, lies a small parallel valley, the Furlethal. In an isolated house situated in the valley, a farmer who had just returned from a long journey, was attacked by typhoid, and within the next two months three other members of the family contracted the disease; the dejecta from the patients, together with all the house slops having been emptied into a small brook which flowed past the door.

Ten years previously it had been proven that direct connection existed between this brook and the springs on the mountain side, which supplied the village with water; and as the disease had not occurred in a single house supplied with well water, the authorities suspected that the water supply derived from the springs was infected with the disease germs, and on investigating found conditions existing as related above. In order that the connection between the brook and the springs might be proven beyond doubt, the following ingenious experiment was made: Eighteen hundredweight of salt was dissolved in water and then emptied into the brook, with the result that within a few hours the water coming from the springs was of a decidedly salty flavor. A similar experiment with two and one half tons of flour produced no result, showing that while the earth was capable of filtering the water so well that even such minute particles as wheat flour were prevented from passing through it was incapable, without the presence of air and microbes, to properly purify and oxidise it.

This remarkable case shows:

1st. That the power of mischief possessed by sewage placed beyond the action of bacteria, is enormous.

2nd. That the diffusibility of typhoid poison in water is practically infinite.

3rd. That water containing the germs of disease may not be purified by filteration through a mile of solid earth (a filter so fine as to arrest particles of wheat flour.

The moral to be drawn from the foregoing is that the greatest care should be exercised in the disposal of waste matters, and that under no circumstances should they be buried deeply under the surface of the earth.

The question will be asked, "How is decaying matter to be disposed of at the surface of the earth without creating a nuisance?" In answer to this question it may be said that as far as it applies to human excreta, two methods have been found to work successfully, viz.—the dry earth closet, the contents of which are dug into shallow trenches at regular intervals, and the septic tank system, the latter being preferable for the reasons that while it performs all the work of the dry earth closet it will also take care of all the liquid wastes from the house, and it requires little attention, while the former depends for its success upon unremitting care.

A brief explanation of the construction and operation of the septic tank system will be of value to those who are anxious to have their premises in the best possible sanitary condition, and who are willing to go to a comparatively small amount of trouble to produce the desired results.

Referring to the accompanying cut, it will be seen that a tank (fig. 1) constructed preferably of bricks or stone well bedded in cement to prevent leakage, is built at such a level as to allow the discharge pipe "D," which is of glazed tiles 4 inches in diameter,

to leave it at a depth of not more than twelve inches beneath the surface of the earth. Where the surrounding land is level this tank may be located quite close to the building where, if covered with earth (and sodded over if desired), it will not cause any inconvenience. If more convenient, it may be placed any distance from the house, and the inlet pipe "E" laid along a mound or ridge of earth, and covered with earth to protect it from the frost; this pipe must, under any circumstances, have a slight continuous fall from the building too, and must enter the tank at the top as shown. If, however, there is a considerable slope to the land, the tank may be buried beneath the surface, it being borne in mind that the branches from pipe "D," which may be taken off at any distance from the tank, must not be more than twelve inches beneath the surface and must be perfectly level. From pipe "D" about every two feet ordinary "T" fitting will give just the desired length, are run branches of field tiles (Fig. 2), 4 inches in diameter, the total contents of which should be equal to the amount of water which will be discharged at each operation of the valve, and allowing 13 tiles to every cubic foot to be discharged, the number required will be readily found. The bend connecting the tank to the system of sub-surface tiles should be of iron, solidly cemented into the bottom of the tank to allow of the cauking in of the valve with lead.

The valve described in this article, which is manufactured by the Dominion Flushing Valve Co., of 558 Dufferin street, Toronto, is the only thing of its kind which can be set at any level, will open and close automatically, and, as it needs no adjusting it can be put in by almost any person. It overcomes the only objection ever made to the septic tank system, viz., that when the emptying of the tank depended upon a servant or some other member of the family to put a plug at regular intervals, replacing it when all the liquid had escaped, it was sometimes forgotten and the tank overflowing caused the pipe between it and the house to fill up, thereby causing a great deal of annoyance and expense.

It will be noticed that a dividing wall is built in the centre of the tank to a height of about two inches from the top, the latter space being left for the free passage of fresh air. In this partition is built overflow "F," the lower end of which should be "caged" with wire netting, ¾ inch mesh, to prevent

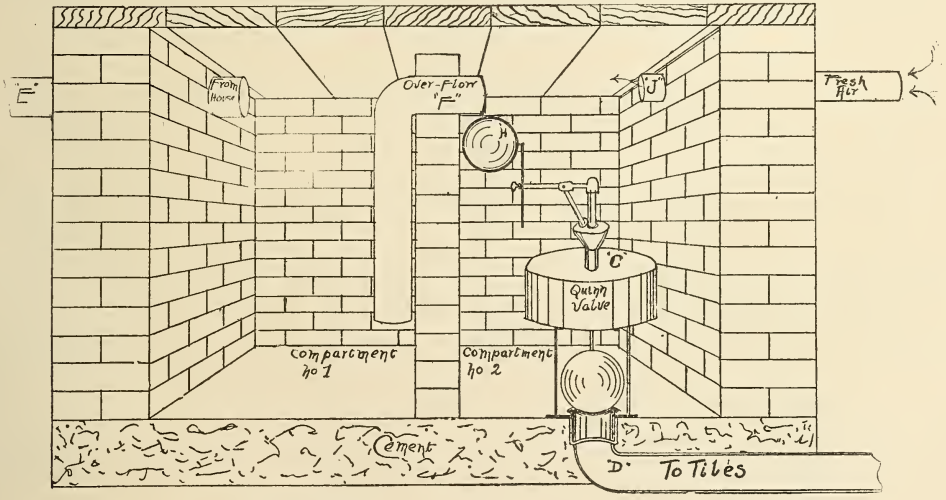

Fig 1.

paper, etc., from passing through with the water. Pipe "J" permits the entry of fresh air, which passes over the sewage and up through the soil pipe "E" to the roof. Manholes "G" "G" provide access to both tanks.

The operation of the tank is as follows: All the sewage from the building enters the tank through pipe "E" filling compartment No. 1, the solids being compelled to float by the gasses generated underneath. When this compartment is filled the liquid overflows through "F" into compartment No. 2, the valve "C" of which is closed. When, however, the liquid rises to the level at which float "H" is set the valve opens, discharging the whole contents of compartment No. 2, be it fifty or five thousand gallons into the system of sub-surface tiles through which it soaks into the earth, there to be taken care of by nature as already explained.

As the valve closes automatically when the tank is nearly empty, it will be seen that sufficient time will be given for that which has just been discharged to soak away before the tank fills again and the operation is repeated.

A word respecting the solid portion of the sewage retained in compartment No. 1. The value of the system will be appreciated when it is stated that so thorough is the action of the millions of bacteria on this body, causing the almost immediate disintegration and decomposition of everything entering the tank, that tanks when opened after a year's use, and into which the sewage from buildings containing many inmates was emptied, were found to contain not more than two or three pails full of a kind of earthy substance, from which scarcely any odor was perceptible. It must be borne in mind, of course, that no disinfectants are necessary with this system, and nothing in the shape of chemicals should be allowed to enter the tank if the life of the bacteria, which is so essential to its success, is to be preserved.

Regarding the size of the tank necessary, it may be said that for an ordinary family a tank four feet long by three feet wide, and from thirty to thirty-six inches high would be sufficient, while for hotels or institutions one large enough to hold about twelve gallons for each inmate would be ample.

The septic tank system has the endorsation of all scientific men who have given the subject of sewage disposal close study. It will not give any trouble if built according to the directions given, and, contrary to the general supposition it will not freeze in winter; if the tiles are placed under a garden most valuable results may be obtained in flowers, fruit or vegetables.

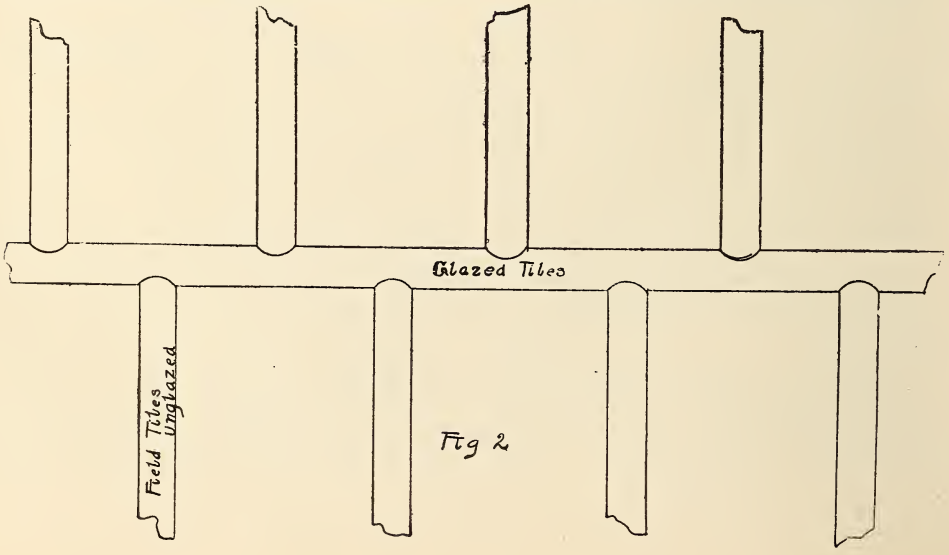

Fig 2

The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

SPRAY CALENDAR—PART No. II.

BY

PROF. WM. LOCHHEAD,

O. A. C., GUELPH, ONT.

TREATMENT.

APPLE AND PEAR.

A.—Against Leaf-eating Insects and Fungous Diseases.

Treatment.	When to Spray.	Insect pests and diseases controlled.
1. Paris green in water. (Formula 6.) (Important.)	Just as leaf-buds are expanding.	Bud-moth, case-bearers.
2. Bordeaux mixture and Paris green. (Formula 2.)	About a week later.	Bud-moth, case-bearers, canker-worms, tent-caterpillars. Scab, leaf-spot and mildew.
3. Bordeaux and Paris green. **(Formula 2.)** (Important.)	Just before blossoms open.	Canker-worms, tent-caterpillars, etc. Scab and leaf-spot, etc.
4. Bordeaux and Paris green. (Formula 2.) (Important.)	Just after blossoms fall.	Codling-moth, canker-worms, tent-caterpillars, pear slug. Scab and leaf-spot.
5. Bordeaux and Paris green. (Formula 2.)	Ten days or two weeks later.	Codling-moth, Palmer worm, apple Bucculatrix. Scab and leaf-spot, etc.

Codling-moths cannot always be controlled by spraying, especially in the southwestern section of Ontario, where a second brood appears later in the season.

In addition to spraying, in this district, use bandages around the trees. Make them from four to six inches wide, three or four inches thick, of any kind of cloth. Old bags, sacks, coarse material of any kind will do. Bands of straw and tow have been used with some success. During the first week in June bind one around each tree three or four feet from the ground; secure it either with cord or small nails; take it off every twelve days, and carefully examine for codling cocoons. These may be readily destroyed by crushing. Replace the bands as before.

Tent-caterpillars are controlled by burning the webs or nests in May; by collecting and destroying the clusters of eggs in fall and winter; by banding the trees, and by spraying the young caterpillars with Paris green.

Canker-worms may be largely controlled by banding the trees in autumn and early spring, and by spraying with Paris green when the worms appear.

B.—Against Sucking Insects, such as Plant-lice and Scale Insects, and against Pear Leaf Blister-mites.

Treatment.	When to Spray.	Insects controlled.
1. Kerosene emulsion. (Formula 10), (1 part in 10 parts water).	Before buds start in spring.	Pear-leaf blister-mite.
2. Kerosene emulsion solution (1 part emulsion to 10 parts water). Or whale-oil soap solution (Formula 12), (1 lb. to 7 gals. water).	As leaves are unfolding.	Pear psylla and aphids.
3. Kerosene emulsion (Formula 10), whale-oil soap as before.	Ten days later.	Psylla and aphids.
4. Kerosene emulsion (Formula 10), or whale-oil soap as before. Or lime wash (No. 16).	About end of May or first of June. During winter.	Oyster-shell bark-lice.

C.—Treatment for destroying borers:

(a) Dig out the borers whenever possible.
(b) Apply the soap-soda wash (Formula 15) in early June.

PLUM AND CHERRY.

A.—Against Curculio, Brown Rot, Shot-hole Fungus, and Leaf-eating Insects.

Treatment.	When to Spray.	Insects and diseases controlled.
1. Bordeaux and Paris green. (Formula 2.)	When leaf-buds are opening.	Brown rot, shot-hole fungus.
2. Bordeaux and Paris green. (Formula 2.)	When fruit is formed.	Curculio, green fruit worms, brown rot, etc.
3. Bordeaux and Paris green. (Formula 2.)	Two weeks later.	Brown rot, curculio, etc.
4. Ammonia-copper carbonate solution. (Formula 4.)	When fruit is large.	Brown rot, etc.

The Curculios are most readily controlled by jarring the trees in early morning, and collecting them on a sheet spread under the tree. The jarring should be begun when the fruit has set, and continued for three weeks. Thrice a week is often enough to jar.

B.—Against Plant-lice and Scale Insects.

Treatment.	When to Spray.	Insects controlled.
1. Kerosene emulsion (Formula 10), (1 part to 4 parts water.) Or whale-oil soap (2 lbs. to 1 gal. hot water). Or petroleum soap emulsion (Formula 14a).	In winter or early spring.	Plum scale, San Jose scale, etc.
2. Kerosene emulsion (Formula 10), (1 part to 10 parts water). Or whale-oil soap solution (Formula 12), (1 lb. to 7 gals. water). Or tobacco solution (Formula 11).	As soon as lice appear on young leaves.	Plant-lice.

PEACH.

A.—Against Peach-leaf Curl, Brown Rot, Curculio, Bud-moth.

Treatment.	When to Spray.	Insects and diseases controlled.
1. Bordeaux and Paris green. (Formula 2.)	Before flower buds open.	Bud-moth and peach leaf curl, brown rot.
2. Bordeaux and Paris green. (Formula 2.)	After blossoms fall.	Peach-leaf curl, brown rot, bud-moth and curculio.
3. Bordeaux and Paris green. (Formula 2.)	Two weeks later.	Brown rot, etc.
4. Ammonia-copper carbonate (Formula 4.)	When fruit is well formed.	Brown rot, etc.

B.—Against Aphis, and Scale Insects.

1. Kerosene emulsion (Formula 10), (1 part in 10 parts). Or whale-oil soap (Formula 12), (1 lb. in 7 gals. water).	Whenever young lice appear.	Aphis.
2. Whale-oil soap (2 lbs. in 1 gal. hot water). Or crude petroleum, 25 per mechanical emulsion. (Slightly dangerous.)	In early spring before buds open.	San Jose scale.

C.—Against Peach Tree Borer.

1. Prof. Slingerland recommends gas tar as a trunk wash. A trial experiment should be made first on a few trees to find out if it injures the trees, for gas tar varies in comparison.
2. Dig out or probe the borers every fall and spring ; and mound up a new base with earth for six inches ; remove and examine in September.
3. Apply Formula in early June.

GRAPE.

A.—Against Black Rot, Mildews and Leaf-eating Insects.

Treatment.	When to spray.	Insects and fungi controlled.
1. Bordeaux and Paris green. (Formula 2.)	As buds begin to swell.	Flea-beetle, black rot, mildews.
2. Bordeaux and Paris green. (Formula 2.)	Ten days or two weeks later, before blossoms open.	Black rot, mildews and flea-beetles.
3. Bordeaux and Paris green. (Formula 2.)	Just after blossoming.	Black rot and mildews.
4. Bordeaux and Paris green. (Formula 2.)	Two weeks later.	Flea-beetle and black rot.
5. Ammonia-copper carbonate (Formula 4.)	When fruit is well formed.	Black rot and mildews.

B.—Against Grape Thrip.

1. Kerosene emulsion, 1 part in 9 parts water.	Soon after leaves are formed.	Thrip of leaf-hopper.

CUCUMBER AND SQUASH.

For the Squash Bug.—Kill the early bugs, and the yellowish eggs on the underside of the leaves; kill the bugs every morning which collect under chips and boards placed near the vines.

For the Striped Cucumber Beetle.—Keep vines well covered with Bordeaux mixture; cleanliness in garden in fall; protect young vines with muslin, or cheesecloth netting; insect powder and flour as for cabbage worm; tobacco water and soft soap mixture sprinkled on vines, followed by a dusting of lime.

ASPARAGUS.

For Beetles.—Spray plants after cutting season with Paris green; regular cutting of all shoots.

For Rust.—Cut and burn all plants in fall.

CABBAGE.

For Cabbage Worms and Lice.—Pyrethrum applied in solution (1 ounce to 3 gallons of water) or dusted on (1 part pyrethrum to 5 parts flour).

For Cabbage Root Maggots.—No thoroughly reliable remedy is known, but good results have been obtained by using Goff's tarred paper cards. These are pieces of tarred building paper, 3 inches in diameter. In the centre is a hole through which the root of the young cabbage is placed on transplanting. Card lies flat on ground.

STRAWBERRY.

The Rust or Leaf Blight.—Bordeaux mixture, when it can be applied without disfiguring the fruit, will control this disease. Apply at intervals of two or three weeks on new beds after they begin to make runners.

TOMATO.

Rot and Blight.—Spray with Bordeaux mixture as soon as rot or blight appears, three times if necessary, at intervals of 10 to 15 days.

POTATO.

Scab, Blight, and Beetles.—For the Scab: Soak the "seed" potatoes or tubers for two hours in a solution of formalin (8 oz. in. in 15 gals. of water).

For Blight and Beetles: First spraying: Paris green as soon as the beetles appear (one pound to 100 gallons of water).

Second spraying: Bordeaux mixture and Paris green when plants are six inches high.

Third and fourth sprayings: Bordeaux mixture at intervals of 10 to 15 days, if necessary.

Spraying with Bordeaux mixture will prevent the blighting of the plants and the rotting of the tubers.

RASPBERRY.

Anthracnose, Leaf-Blight and Saw-fly Larvae.—First praying: Bordeaux mixture and Paris green just before growth begins.

Second spraying: Bordeaux mixture and Paris green about when first blossoms open.

Third spraying: Bordeaux mixture when the fruit is gathered.

CURRANT AND GOOSEBERRY.

For Worms and Mildew.—First spraying: Potassium sulphide or Bordeaux mixture and Paris green before the buds expand.

Second spraying: The same 10 to 15 days later.

For worms alone, hellebore or Paris green will be effective.

For Currant Plant Lice.—Spray with kerosene emulsion or whale-oil soap solutions as

soon as lice appear ; or dust carefully with ne wood ashes.

CELERY.

Leaf Blight.—First spraying : Bordeaux mixture (Formula 1) while in the seed bed.

Second spraying : Bordeaux mixture a week after transplanting.

PEAS.

Pea-weevil or Pea "bug."—Fumigate the peas as soon as threshed in tight bins, boxes or oil barrels, by placing carbon bisulphide in shallow pans on top of the peas, and covering the whole tightly for 36 hours. Use 1 lb. for 100 bushels ; 1 oz. for 100 lbs. of peas ; and a tablespoonful to every cubic foot. The same treatment may be used to kill weevils in grain and in meal. As this gas is explosive great care should be taken not to bring a light near it until it has been ventilated.

MISCELLANEOUS.

Cow Horn Fly.—Apply with a brush on the parts most usually attacked a mixture of one quart of seal or fish-oil and one tablespoonful of carbolic acid.

Mustard.—Spray just before the plants some into bloom, on a calm day. Use formula 3, and an ordinary barrel spray pump. A barrel of solution is enough for an acre.

Buffalo Carpet Beetle and Black Carpet Beetle.—Take up infested carpets and spray with benzine ; fill cracks in floor with putty or plaster paris ; lay pieces of red flannel in closets as traps, which should be examined every week.

Red Ants.—Attract to a sponge filled with sugared water, and kill the collected ants by dropping them into boiling water. Repeat.

Rose Slugs.—Apply hellebore before buds open, and at intervals of a week or ten days.

Thrip, or Leaf-Hopper, on Rose or Virginia Creeper.—Use tobacco solution ; whole-oil soap solution (1 teaspoonful in 2 quarts of water).

Red Spider.—Syringe or spray with cold water, or tobacco water.

TABLE OF FERTILIZERS FOR THE GARDENER.

Given Before the Hamilton Horticultural Society by Mr. F. T. Shutt, Chemist Experimental Farm, Otawa.

ROSES AND FLOWERING PLANTS.

(Out of Doors).

Ground bone.. .. .. 4 parts.
Sulphate of potash .. .. 1 part.

Well worked into the soil at the rate of, say, 4 lbs. per square rod. If leaves are yellow, apply nitrate of soda, one-third to two-thirds lbs. per square rod, as top dressing.

POTTING SOIL AND FOR USE IN FRAMES, GREENHOUSES, ETC.

For potting soil (house plants,etc.), ¾ lbs. to 1½ lbs. of above mixture of ground bone and sulphate of potash, thoroughly incorporated with every 100 lbs. of soil. (N. B.—It is better to commence with the smaller application and subsequently enrich, if necessary). If growth lacks vigor, nitrogen can be applied as nitrate of soda to the pots. This is most easily done by making a solution of 1 oz. nitrate of soda to 1 gallon water. Two ounces, once every fortnight or three weeks, per 6-inch pot, will be sufficient.

For soil in greenhouses, 2 lbs. of above mixture of ground bone and sulphate of potash for 100 square feet. If growth is not vigorous, follow with nitrate of soda 1 lb., sulphate of potash 1 lb., per 100 square feet.

Instead of the foregoing formula, the following may be used for hothouse work, for frames and vegetable growing:

Nitrate of soda .. .. ½ lb.
Superphosphate of lime .. 1 lb.
Ground bone.. .. .. 1 lb.
Muriate of potash.. .. .. ½ lb.
} Per 100 square feet of surface.

N.B.—To facilitate the distribution, mix with 4 to 5 times its volume of dry earth.

After growth has commenced, nitrate of soda at the rate of 4 oz. per 100 square feet may be applied—and repeated, if necessary, every second or third week during growth.

Note.—If rich garden loam, reinforced with well rotted manure, is used, there is no occasion usually to apply fertilizers.

LIQUID FERTILIZERS FOR HOUSE PLANTS, VEGETABLES, ETC.

Nitrate of soda. .. .. 3 parts.
Sulphate of potash .. .. 1 part.
Phosphate of soda... .. .. .. 1 part.

Dissolve in water at the rate of 1 oz. to 1 gallon, and apply once every fortnight or three weeks at the rate of 1 to 2 fluid ounces per pot.

If soil is very rich in organic matter (i. e., rotted manure), and plants run to foliage, omit the nitrate of soda from above formula.

STRAWBERRY AND SMALL FRUITS, ALSO USEFUL FOR GENERAL GARDEN CROPS.

A—Ground bone.. .. .. .. 1 part
Superphosphate.. .. .. 1 part
Muriate of potash.. .. 1 part
} 500 lbs. to 800 lbs. per acre.

For Strawberries—Top dress with 100 lbs. of nitrate of soda per acre after blossoming.

In place of "A," the following may be substituted, and is frequently better by reason of its larger percentage of soluble acid.

B—Ground bone .. .. 1½ parts.
Superphosphate of lime. .. .. .. 1½ parts.
Muriate of potash .. .. 1 part.

Apply at the rate of 500 lbs. to 800 lbs. per acre, and follow with nitrate of soda, as already indicated.

LAWNS.

Preparation of the soil is most important. Before seeding, work into the soil :

Ground bone .. .. 5 parts.
Muriate of potash .. .. 1 part.

At the rate of 5 lbs. per square rod.

Top dress with muriate of potash at the rate of ½ lb. per square rod 2 or 3 times during the season.

ORCHARD MEETINGS CONDUCTED BY DOMINION FRUIT INSPECTORS.

THE FRUIT DIVISION of the Dominion Depa t-ment of Agriculture is co-operating with the Provincial Departments of Agriculture in the holding of practical orchard meetings to demonstrate such subjects as pruning, grafting and spraying. In Ontario, these meetings have been held under the auspices of the Farmers' Institutes. Messrs. McNeill, Lick and Carey, Dominion Fruit Inspectors, each accompanied a delegation of speakers at a series of meetings lasting about three weeks. These were held in the orchards and, as stated, consisted chiefly of practical demonstration in orchard management. The farmers, who attended in goodly numbers, also took part freely in the discussions which ensued; these were usually continued at evening meetings held in a local hall. In many cases local fruit growers' associations were formed with the object of meeting regularly during the season and carrying on similar work amongst themselves.

A series of orchard meetings has just been arranged for certain counties in Quebec. The Quebec Department of Agriculture will co operate with this department, and furnish a speaker on the delegation. The representatives of the Dominion Fruit Division are Inspectors Scriver and Dery, of Hemmingford and Montreal respectively. These meetings begin on the 20th of April and will last nearly the end of May. A similar series has been organized in conjunction with the New Brunswick Department of Agriculture, extending through the same period. At these meetings, Inspector McNeill of Walkerville, Ont, and Inspector Vroon of Middleton, N. S., will be the speakers representing the Dominion Department of Agriculture,

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A NEW AND VALUABLE RASPBERRY.

R. B. Whyte, a director of the Ontario Fruit Browers' Association, some time since developed a raspberry which has been spoken of most highly by those who have tested its quality. The origin of the raspberry was peculiar. Some years ago Mr. Whyte kept chickens, and amongst other refuse given them was some raspberries. Finding that his chickens interfered with garden work, he killed them off and pulled down the hen house. Where the hen house had stood there grew thirty raspberry vines, started from the seeds in the berries which had been thrown to the chickens. These were such hardy, vigorous plants that the owner transplanted them and kept them well cultivated. Of the thirty vines one of them, the Herbert, by name, proved of special value, and this was kept, whilst the rest were destroyed. This was the origin of the new raspberry which Mr. Whyte has recently sold to a nursery for $450.

THE WORLD'S FAIR AT ST. LOUIS.

According to press notices of the World's Fair, St. Louis, sent out by Mr. F. W. Taylor, there will be twice the space devoted to fruit at St. Louis that has been given it at any previous World's Fair. All states, societies and individuals are urged to begin at once to make preparations for an exhibit that shall surpass anything ever yet attempted. We trust that Canada will be creditably represented.

THE AMERICAN PARK and Out Door Art Association will this year hold its annual convention in Buffalo, N. Y., on July 7-9. One day will be spent in the beautiful park reservations about Niagara Falls. Special Sessions will be devoted to School Gardens and Park Interests.

THE INDUSTRIAL FAIR will this year be made a Dominion exhibition, and will no doubt be the best fair ever held in Canada. With the new main building completed, and the other buildings renovated; and with the prospect of a liberal grant from the Dominion and of special grants from the Province of Ontario, there is no reason why it should not surpass the most sanguine expectations. The Experimental Station exhibit of fruits will attract more attention thn ever because of the great number of new varieties of fruits now in bearing, concerning which planters will want information before purchasing.

Open Letters

AUSTRALIAN APPLES.

An important factor in the future of our long keeping varieties of apples, like the Baldwin and Ben Davis, is the shipments of Tasmania and Australian apples. These shipments have been increasing from year to year, and the New York Fruit Trade Journal has received definite advices of shipments amounting during the season of 1902 to 307,400 (Denis & Sons makes the shipment 415,000) cases to London and Liverpool. The first of these shipments will reach London about March 30th, and there will be regular arrivals until June 15th, when the season closes.

Ottawa. A. McNEILL.

EXPRESS COMPANY FAVORS BRITISH COLUMBIA.

Sir,—I enclose you clipping from our local paper, for your own information or use, if you please.

By the February number of Horticulturist,

page 52, Mr. Smith practically states that plums cannot now be shipped to Northwest owing to lack of favorable rates and conditions. Yet, as you will see by the clipping enclosed, the express company can, and have done so in the past, make both favorable rates and conditions for B. C. shippers, from the coast to Winnipeg, a greater distance than from Ontario fruit points to the prairie capital, and even on such perishable fruits as strawberries. Plums in large quantities are shipped (California style packages), and arrive in splendid condition.

Last season a friend sent me by express a case (Wilson) of pears from Beamsville, just as a test of keeping qualities of Bartlett. About three-fourths proved to be in perfect condition. The balance were quite soft. The square apartments in the drawers were not suitable for the larger pears. Wrapped in paper, in boxes, pears should carry safely to any Northwest point. Yours truly,

A. W. FINBOW.

(From Daily News-Advertiser, Vancouver, B.C.)

If plans now pending between the fruit growers of British Columbia and the officials of the Dominion Express Company are completed, three times as much fruit will be shipped this year from Vancouver to Winnipeg as was ever the case in any previous year.

Inspector Kirby, of the Dominion Express Company, this morning announced that his company is prepared to run a daily car all summer especially for the fruit export of the province. This will be attached to the through express, and will make a three-day trip to Winnipeg.

Last year cars of the pattern that will be used this season every day were operated many times during the season. No regular schedule was arranged, but the car was run only whenever sufficient business offered to make it worth while. The car has special ventilators, and has every convenience for the transportation of fruit in the best and most practicable manner.

"This car will be run every day after June 1," said Mr. Kirby. "The strawberry crop will be the first handled, and then the other fruits as they ripen. We will give the best possible service to Winnipeg, and at rates that should meet all the requirements of the growers. A meeting of the local association will be held in Victoria on March 4, and by that time we will be able to announce a tariff."

PLUMS ON THE WILD PLUM STOCK.

Some time ago the question was asked, How will plums grow on the wild or Chickasaw stock ?

We have about four hundred grafted or budded on the wild stock. They are quite vigorous, and regular annual bearers of heavy crops. In fact, most of our best show plums are gathered from these trees. They should, however, be grafted or budded very low down, otherwise the more vigorous growing varieties for a time would outgrow the stock. But when they get into bearing the top will not grow so fast and the stock seems to catch up. Where only a few trees are wanted a good way is to take sucker roots about half to three-quarters inch in diameter, plant in nursery row for one year, then cut off low to the ground and graft with the required varieties. They will make trees wonderfully fast, and are as easily grown as potatoes.

J. G. MITCHELL,

Georgian Bay Experimental Station.
Clarksburg, Ont.

MR. T. H. RACE AT KINCARDINE.

Sir : We had a treat last week, consisting of two addresses on the following subjects (by Mr. T. H. Race, of Mitchell, one of the best amateur rose culturists of Ontario), viz., Bulb and Rose Culture, and Their Influence Upon the Home.

The subject of bulb culture was treated on to the students of the various schools in our town in the Town Hall, beginning at 4.15 p.m., and was listened to with a great deal of interest, and no doubt there was implanted on the minds of many the seeds of knowledge that will lead to the beautifying and adornment of homes in the future.

In the evening Mr. Race lectured to an appreciative audience in a fairly filled hall. It being St. Patrick's day in the evening, the Methodists had a social for the benefit of their church, and so many were prevented from hearing the refining lecture, but when we know that about 150 students in the afternoon and about 300 grown up people in the evening listened with marked attention to such an experienced amateur, the refining influence will be widespread.

Mr. Race contends that the culture of flowers and plants gives an interest to the young and makes home attractive, and also that "love of country" is only seen in and by a home-loving people.

The Culture and Care of Roses was very interesting, and many took notes.

The speaker said that rose bushes for outside planting should be about two years old and be planted in rows 5 feet apart and 3 feet apart in the rows, and when sufficiently grown to bend one cane of each bush and tip it near the root of the next and train this so that the shoots rising therefrom will form the flowering stems.

To destroy the thrip he has found nothing equal to hen manure put beneath the plants, the ammonia from same proving certain death to this pest of the rose bush, and that soap suds sprinkled over and under the leaves also kill the thrip.

He spoke very highly of the usefulness of the toad in the garden, particularly in destroying ants, which are so troublesome in many gardens. He places a toad under a box set close to an ant hill, and so quickly does master toad catch them that very soon not an ant can be found. The prejudice against toads should be taught to be wrong and every means taken to preserve them.

All who listened seemed pleased, and a crowded hall is sure to greet Mr. Race should he ever speak again in Kincardine.

WM. WELSH,
President K. H. S.

Kincardine, March 24, 1903.

FRUIT PROSPECTS AT WHITBY.

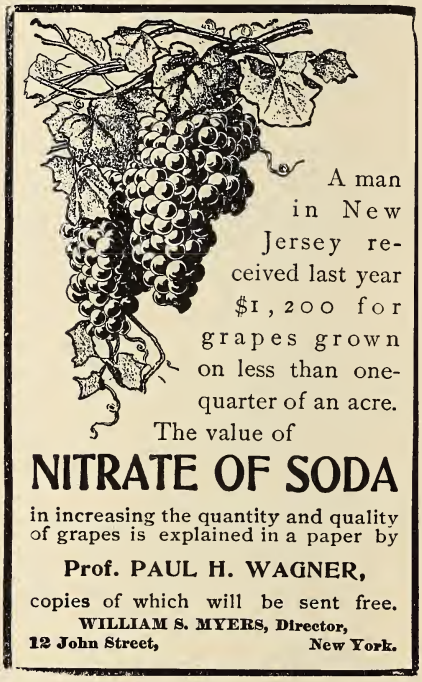
Sir: As we have nearly finished pruning our orchard, we have a good opportunity of examining the buds, wood growth, etc., of the different varieties we are experimenting with. We find no frozen or injured buds on any of our apple trees; but some of the pears that were very heavily laden last year are not as perfect as usual, notably Dr. Reeder, Fred. Baudry, President Drouard, Doyenne d'Ete, and some others, while Clapp's Favorite, Bartlett, Dempsey, Lawrence and W. Nelis are pretty well filled with perfect buds. Kieffer Angouleme, Louise Bonne, Ester Buerre, Clairgeau, Tyson, Jules Guyott, Lucrative, and some of the newer sorts, as Rutter, Koonce, Wilder, Lawson, etc., were never in better showing at this season. Should the spring be favorable I have hopes of a heavy crop of pears. The month of March, so far, has been so fine and springlike, that the buds are swelling already, which is at least two weeks earlier than last year. Although the frost is all out of the ground, the land is too soft to drive over. We have two sprayers all ready to operate as soon as the land is solid enough. Owing to so much rain at spraying time last year, our spraying was not done in time, and we suffered the consequence in having too many scabby apples. The prices of apples has ruled very low from the start last fall, and is still low for anything but No. 1 stock, and this is only about half the price they were at this date last year. I hope the committee appointed at our last annual meeting on transportation will accomplish some good work before we have another fruit crop to handle, as the present and past rates charged are simply prohibitive between here and the eastern markets. It is absurd that the railway companies should charge more for 100 lbs. of pears than for the same weight of apples. When the freight and commission is taken from the selling price there is often a loss, when the packages are counted in; and I hope that the carrying rates will be so adjusted that we will not be asked to pay more from here to Montreal than the fruit men of California do for the same kind of goods and packages and fruit. There is another grievance that ought to be remedied, that is the supplying of cars on the G. T. R., which was very badly done last year; several car loads of apples, which were packed and delivered on their platform, lay there for weeks and were frozen, so that they were simply dumped on the commons and left to rot, although the railway company were requested for cars weeks ahead. These losses should be remedied, and the railway company should be made to feel that others have rights as well as themselves.

Subscribers here speak appreciatingly of the improvement of the Horticulturist, and hope its success will continue. Yours respectfully,

Whitby. R. L. HUGGARD.

CLEMATIS FAILING.

Sir,—I have planted Jackmanii, Henryii, and other varieties of Clematis for three years in succession to shade a verandah having an easterly frontage, close to Lake Ontario. They are carefully planted, and do well until they commence to bloom, then something happens to them, the blooms droop; and the plant gradually dies. Out of the five Clematis planted last spring, only one survived the summer. I have found "cut worms" about the roots of some that have been destroyed, but could find none in this instance. Clematis on verandahs having a north and southerly exposure have always done well.


A man in New Jersey received last year $1,200 for grapes grown on less than one-quarter of an acre.
The value of
NITRATE OF SODA
in increasing the quantity and quality of grapes is explained in a paper by
Prof. PAUL H. WAGNER,
copies of which will be sent free.
WILLIAM S. MYERS, Director,
12 John Street, New York.

New Catalogue for 1903 just out. Send for it.

DOMINION NURSERIES

The Smith & Reed Co., ST. CATHARINES, Ont.

We have a larger and better stock of Fruit and Ornamental Trees, Shrubs, Plants, etc., than we ever before offered.

Prices reasonable. Quotations cheerfully given on application.

Fig 2585. The Brighton Grape.

THE
CANADIAN HORTICULTURIST

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VOLUME XXVI NUMBER 6

THE BRIGHTON GRAPE

FOR the dessert table nothing is a more attractive ornament than a fruit dish piled with a choice assortment of delicious grapes, fresh and plump from one's own garden and appetising by reason of their beauty. A garden of well chosen varieties would furnish the owner a constant change of kind and color; or, if he prefer it, a loyal blending of the red, white and blue.

Money cannot always command from the fruiterer that fresh condition, that perfection of beauty or that delicacy of flavor, that is to be found in grapes from one's own garden, where one may gather the fruit with his own hand just as it reaches the point of perfect maturity. And, as for the grapes offered for sale in the markets, although they may be cheap in price, they have come many a mile and met with much rough usage, and therefore cannot compare in value with the home-grown samples. From these considerations we do not hesitate to advise every reader, who has even the smallest city backyard, to plant a few vines for the supply of his own table. They will creep over an unsightly old fence, a barren wall or a back verandah, and thus prove ornamental as well as useful.

Among the valuable red grapes for dessert we place the Brighton, a medium sized sample of which is shown in our frontispiece. It takes its name from the town of Brighton, N. Y., the home of its originator, Mr. Jacob Moore. He raised it from the seed of Concord, fertilized by Diana-Hamburg, so that it is one-quarter European and to this no doubt is due both its delicate flavor and its slight tendency to mildew; while to its Labrusca, or American Fox grape, relationship we may credit the vigor of the vine, and its large, thick, dark green foliage.

The Brighton, when eaten just at maturity, is sprightly, somewhat aromatic and delicious; the pulp separates readily from the seeds without impairing the flavor. When first ready for use the color is a light red, but if left very long on the vines the color changes to so dark a crimson that it is hard to recognise it as the same variety, while its quality also deteriorates.

In season of maturity the Brighton is somewhat in advance of the Delaware, so that, of its season, it may fairly be reckoned the best red dessert grape. No one, therefore, who is planting a small collection of grapes for his own table, should omit a vine of the Brighton; and, if he will take the trouble to remove the small, imperfect bunches, in the early part of the season, he will have some magnificent clusters in September for the decoration of his fruit dish.

We do not commend the Brighton to the planter of a commercial vineyard; and, unless we are much astray in our interpretation of the signs of the times, the time is not far

distant when the great Northwest will be the chief market for Ontario grapes, and therefore we must plant most largely of such varieties as carry well and keep for a long time in first-class condition.

OPINIONS OF OTHERS.

M. PETTIT, Winona, Ont:—Brighton is not a favorite red grape with those who grow extensively for market in this section. It does not sell as well as Red Rodgers, is fully as subject to mildew, and does not bear regular grapes. If heavily laden one year it will be light the next, and if allowed to hang on the vines after it is ripe looses its sprightly flavor. I think Lindley, Agawam and Delaware are much better.

F. W. BRODRICK, St. Catharines:—The Brighton grape may well be classed as one of our best commercial red varieties. It is a good vigorous grower and a productive bearer. It is a grape of excellent quality for dessert, and always meets with a ready sale on the markets. It ripens in good season and is very rarely injured by fall frosts in our locality. It grows well on sandy loam or light gravelly soil, but may be grown with success on heavier soils.

A. W. PEART, Burlington, Ont.:—I have about 60 vines of Brighton eleven years old, and do not consider them as desirable and profitable as some other varieties. It is not so productive as the Worden or Concord, and although of fine quality, its color—a reddish purple—is not distinctive enough to give it a higher price than the black varieties unless it be known to the consumer. It is also subject to mildew.

T. H. RACE, Mitchell, Ont.:—Quite early in the eighties the originator sent me two vines of the Brighton grape to see how they would do in this locality. I have grown them ever since. The vine is a good grower, fairly hardy, but not what I would call a heavy bearer. The fruit ripens before the Concord, and is of better quality. I have it growing side by side with the Amber Queen, but it is not as strong a grower nor as heavy a bearer as the latter. With me the Amber Queen has never mildewed, and in growth and bearing qualities it has always outstripped the Brighton, and for this section I would consider it a preferable grape. The Brighton, however, is a trifle earlier, a larger bunch, and somewhat more attractive in appearance.

W. T. MACOUN, C. E. F., Ottawa:—There are several varieties of grapes which ripen earlier than the Brighton at Ottawa, but the latter will ripen if the season is fairly favorable. If I were planting six varieties for home use here it would be among them. When mixed with other varieties which bloom at the same time, the fruit sets well, and there is a good crop of it. The quality is very good, and even if the fruit is not thoroughly ripened, as is sometimes the case here, the fruit is usually palatable, as it becomes sweet before quite mature.

W. COX, Collingwood:—The Brighton does well here. I have grown it about 18 years, and I have never laid it down a winter yet. It bears well with us, and the fruit is of such good quality that anyone who buys them once is always ready for them again. I think a good deal of Brighton.

W. WARNOCK, Goderich:—I consider the Brighton the best dessert grape in its season of all the American grapes. It is one of the strongest growers and produces very large bunches and plenty of them. The berries are extra large, dark red, of the finest flavor when used as soon as ripe, but they lose their rich flavor very soon after they ripen, so they should be used quickly after they become ripe. The vine is quite hardy with me, and a regular cropper. I am sure no one will ever regret planting a vine of Brighton if they live to taste its fruit.

Editorial Notes and Comments

SELLING FRUIT AT POINT OF SHIPMENT.

IT is high time for the fruit growers of Ontario to make a change in their methods of selling fruit. No more reckless system could be thought of than the present one, where thousands of growers blindly ship their fruit to consignees in out chief cities without the least idea whether those markets need the shipments. Our country is large enough to take all our fruit at paying prices were it properly distributed, but when it is shipped in the present reckless fashion it is no wonder that first one centre is glutted and then another. Besides, the present system gives the owner of the fruit no word as to the price, and he simply must accept whatever people choose to give him. Such a method of sale would not be tolerated one moment in the grocery trade, or in the hardware business. And why must we give away our fruit to any one who will pay the freight and the commission, and perhaps enough over to pay for the baskets and the picking.

COLD STORAGE FOR FRUIT GROWERS.

THE solution of the question of selling our fruit by contract is undoubtedly in the cold storage. So long as our fruit must be sold within twenty-four hours after it is gathered, we have no alternative—we must ship—and we must accept whatever pittance it may bring. But given an ample refrigerating warehouse at central shipping points, where the fruit grower may have his perishable fruit held for a week or two if necessary for a proper sale, and we believe there would be a complete change in our business, and proper returns for our investments.

SELLING BERRIES ON THE TRACK.

MR. J. C. EVANS, of Harlem, Mo., is advocating the selling of fruit by contract. At a recent meeting of the fruit growers of his state, he said:

"All fruit growers have, at some stage of the game, to learn a lesson. Many of us have learned that lesson long ago. It is one thing to grow fruit; another thing to get rid of it right. Some four years ago, at a convention of fruit growers from several different states, the question of selling direct at the growers' shipping point was sprung. Those gentlemen said, 'You never can do it.' One said it could be done. Now what do we see at this meeting? At such and such a place the growers sold their berries on the track. Four-fifths of the berries this year in Arkansas and South Missouri were sold on the track. Of the 200 cars of fruit from our station not a car was consigned. The time is nearly at hand when no fruit will be consigned to any commission man. It will all be sold on the track. The time is coming when a man who grows a car load of cattle or hogs will have the buyer go there and buy them outright. The day of the live stock commission man is past. The day is coming when all farm produce will be sold on the track. We should encourage the approach of that day. Tell the buyer your fruit or stock is for sale, but it must be sold before a wheel turns."

THERMAL EFFECTS OF SOIL CULTIVATION.

THE benefits of cultivation of the soil are far more extended than is usually supposed. Primarily the gardener hoes his garden simply to kill the weeds, thinking what a curse they are, causing him such constant labor. Recently it has been plainly

demonstrated to him that shallow tillage, by affording a mulch of fine soil upon the surface and breaking up the capillarity in the soil, conserves that moisture so essential to plant growth during our hot dry months of June and July and sometimes a part of August. Besides this, it has been shown that the mechanical effect of loosening up the soil and making it pervious to the action of the air, is most helpful in rendering available those elements of fertility which would otherwise lie a long time locked up in the ground, but now we are learning that it has also a positive effect upon the temperature of the soil. Seeley (Mo. Weather Rev., 1901) shows from actual tests that newly cultivated soil is 6 degrees warmer at the surface; 5 degrees lower three inches below the surface; and about the same twelve inches below—conditions most favorable for plant growth. The warmer surface soil hastens the process of growth in the plant, and it is a protection against frost. The soil just below the surface being cooler, retards capillarity and thereby retains the soil moisture, while the temperature about the roots is about the same or a trifle higher than the same in uncultivated soil.

LIME FOR SOILS.

A METHOD of determining accurately the quantity of lime to apply to soils to neutralize the acidity has been described by Dr. Hopkins at a recent meeting of official chemists at Washington, D. C. That lime is useful in agriculture has long been recognized in practice, but just in what quantities to apply it, and to what soils, has been a problem. The old warning is expressed in the couplet:

> The use of lime without manure,
> Will surely make the farmer poor

has deterred many from using it at all. In many cases it would no doubt give splendid results, especially in cold acid soils. Now, if we can definitely determine the acidity of a soil and the proper amount of lime to apply to correct this condition, we have before us an advance step in soil fertility. Wiley, in an address on the subject, concluded as follows: "Agricultural chemistry, passing from having determined what the soil is and what plants are and how fertilizers can be made and applied, is now advancing to a still higher plane of investigation, to determine how the soil shall be made maximum in production and how the conditions of growth shall secure the maximum of desired qualities."

NITRATE OF SODA FOR TOMATOES.

VOORHEES (New Jersey Expt. Sta.) has found by experiment that the application of 200 lbs. per acre of nitrate of soda to tomatoes in two equal applications during the growing season increased the yield by 3,220 lbs. per acre, and when the same quantity per acre was applied in three equal distributions, the yield was increased 5,880 lbs. This is a sufficient evidence in favor of the judicious use of this fertilizer. It must always be borne in mind that its effect is to increase of the vigor of the plant growth, and in some cases this would mean a proportionate decrease of fruitfulness. For example, Voorhees reports having tried a larger quantity with distinct loss in quality of yield. In one case he used 300 lbs. per acre, applied as above, and the yield was decreased by 475 lbs. over that treated with 200 lbs. of nitrate of soda, because of larger vine growth and later maturity of fruit.

THE KIEFFER SELF-STERILE.

POWELL (Del. Exp. Sta.) reports blossoms of the Kieffer practically self-sterile, and that LeConte is a good pollenizer for it. However, we do not need to worry about a crop failure of this pear, for his records of 1901 show that if two blossoms out of one hundred set fruit the resulting crop will be a heavy one.

THINNING FRUIT.

SANDSTEN (Maryland Exp. Sta.) has been conducting experiments in thinning, and in Bulletin 82 calls the attention of fruit growers to its importance. He says it pays to thin peaches and plums after the June drop, the former to not less than five inches apart and the latter two or three inches apart. Apples and pears should be thinned when about the size of small crab apples, leaving the fruit four or five inches apart.

Among the advantages to be gained are more regular crops, stronger and more shapely trees, less disease, and larger, better colored, more uniformly ripened and more saleable fruit.

These excellent results, however, need not be expected by the fruit grower who neglects the other requisites to successful fruit growing, such as pruning, spraying, fertilizing and cultivation.

That even a worthless orchard can be made to pay by attention to these details has been proved by Mr. Tweedle, of Fruitland; and by many others. Card (Rhode Island Sta.) has issued a bulletin showing the excellent results of three years' work on less than an acre of orchard. Though previously worthless, the third year's crop of apples sold for about $80; showing that few parts of the farm can be made to pay better than a well managed apple orchard.

THINNING PEACHES AND PLUMS.

PROF. BEACH, of Geneva, has made some experiments in the thinning of peaches and plums, and has not met with such results as would lead him to advise it in commercial orchards. Thinning, he thinks, should constitute the last resort after details of fertilizing, cultivating, draining, pruning, etc., have been attended to. He thinks, indeed, that pruning is the most economical method of thinning the crop.

The professor should mention the varieties treated; for this would, no doubt, be the key of the problem. We have seen too many experiments tried in thinning out the fruit of over-loaded Alexander peaches to doubt its importance. The size of the fruit remaining was doubled, and consequently sold at a proportionately higher price, but the number of baskets gathered was as many from the thinned trees, as from similar trees not thinned.

Prof. Beach does, however, grant "that systematic thinning of fruit, combined with skillful care in other directions, may materially strengthen the tendency of the tree to bear annually."

THINNING THAT PAID.

AFTER all, facts are the best proofs, and these are constantly accumulating in evidence of the advantages to be gained by the enterprising fruit grower by judicious thinning. Of course it will not pay in every instance, and no rule will fit all cases. A young vigorous tree will carry a much heavier load of fruit without its size being lessened than an older tree, while on poor soils even close thinning will fail to produce large sized fruit.

The following effect of thinning was observed by A. T. Jordan (Amer. Agr. 1902) on two trees set in 1897. The set of fruit on one tree was 862 peaches, and on the other tree 852. From the first tree 69.5 per cent. of the total set of fruit was removed, leaving to mature 263 peaches. From the second tree 31.9 per cent. of the fruit was taken, leaving to mature 580 peaches. From the tree which had been most heavily thinned 2.83 baskets of fruit were obtained. The average weight of the peaches from this tree was 4.48 ounces, the price offered per basket by the leading grocers was $1.00, and the total value of the peaches from the tree was $2.83. From the tree less severely thinned 3.92 baskets of fruit were obtained.

The fruits from this tree averaged 2.81 ounces each, for which the leading grocers offered but 45c. per basket, making the total value of the fruit from this tree but $1.76. The immediate financial result of thinning in this case was $1.07. Further observation of the two trees showed that 46.6 per cent more fruit buds matured on the tree severely thinned during the season than on the other tree. Figured out on the basis of an acre, there was an advantage in thinning of $171.20.

Had this experiment been verified in the case of a dozen or twenty instances instead of one, it would of course have much more weight, yet every instance of this kind helps to establish the position we have taken, that with such varieties of peaches and plums as are inclined to overload, and grow small in consequence, thinning pays.

APPLE SITUATION ABROAD.

MR. GLEASON, the general manager of the Gleason-Loomis Cold Storage Company, of Le Roy, N. Y., recently returned from Europe and furnished some interesting information in regard to the apple situation in foreign countries. Mr. Gleason says:

"Those who have not paid special attention to the subject will be surprised to learn of the vast distribution of American apples throughout Europe. Europe does not begin to produce enough apples for its own consumption. In fact, Europe produces only one-eighth of the apples it requires. These apples, which are of indifferent quality, are consumed early in the fall and are practically gone when the American exportations begin to arrive.

"It is a matter of statistical record that between September 15 and December 27 of 1902 apples were shipped from the United States to various European ports in quantities as follows: To Liverpool, the great distributing point of apples shipped to Europe, 1,008,868 barrels; London, 274,190 barrels; Glasgow, 318,431 barrels; Hamburg, 97,647 barrels; other European ports, 58,339 barrels—or a grand total of 1,757,475 barrels of American apples shipped to Europe in three months.

"The amount of the shipments depends very largely on the price of the product. In 1901 the apple crop in the United States was very light, and as a result only 524,889 barrels of apples were exported to Europe as against 1,757,475 barrels last year.

"The average price for the 1902 crop to this date was $1.50 to $2.50 a barrel, net at shipping point. These apples would be taken freely at 12 shillings a barrel, or about $3, for good stock on dock in European ports.

"American producers would have a splendid market for apples in Germany, were they not hedged about with laws, regulations and restrictions, like complaints of the San Jose scale, etc., which are intended to protect the German fruit growers and certainly have the effect of keeping American fruit out of the German market, and may be called reprisals, for in effect it is a continuation underlying the fight made on American pork."

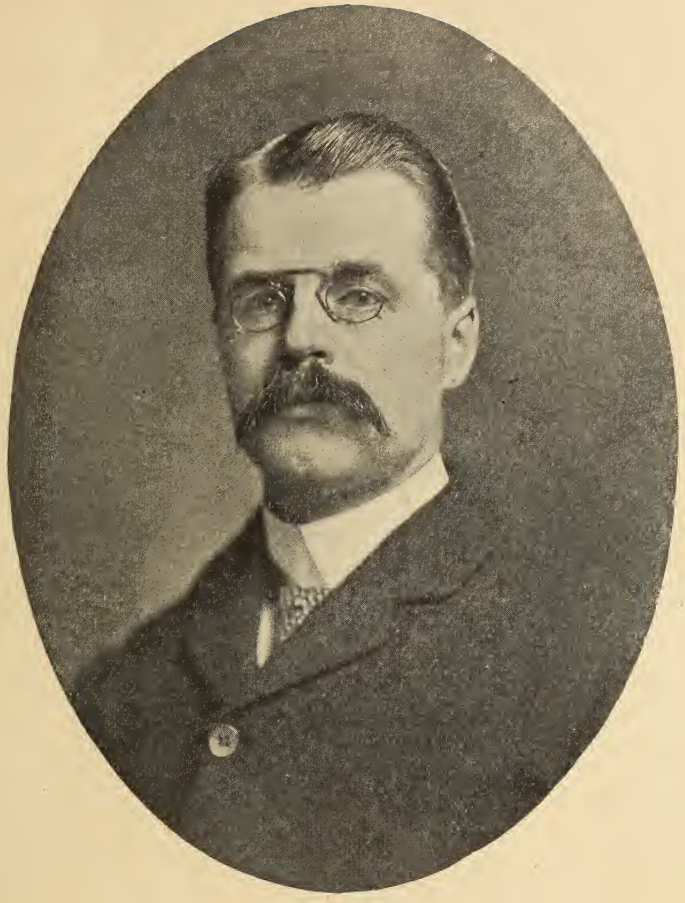


FIG. 2586. C. C. JAMES, M. A.

C. C. JAMES, M. A.

DEPUTY MINISTER OF AGRICULTURE FOR ONTARIO.

IT is a fortunate thing for a province or a country when its chief officers are honest, progressive, courteous and obliging. Such an officer is C. C. James, Deputy Minister of Agriculture for the Province of Ontario.

Mr. James was born in Napanee, the county town of Lennox and Addington, on the 14th June, 1863. His parents were both born in Canada. His paternal ancestors were natives of the county of Wexford, Ireland; and his mother was a descendant of the Canniff, Dulmage, and Huff families, who, with many other United Empire Loyalists, came to Canada after the revolutionary war of 1776-1783 and settled around the Bay of Quinte.

Like most of our prominent Canadians, Mr. James commenced his education in the public school of his native town. He took a complete course in the Napanee High School, which at that time was one of the leading schools of Eastern Ontario, and subsequently entered Victoria University, Cobourg. At the university he was known as a hard working and successful student,

clean-cut and scholarly, with a taste for literature and natural science. He won the gold medal in natural science and received the B. A. degree in 1883—recognized by his fellow students and the college staff as a young man of much promise. From January, 1883, to January, 1886, he held the position of assistant master in the Cobourg Collegiate Institute, teaching science and some other branches. While thus employed he took a special post-graduate course in chemistry and mineralogy at Victoria University, and subsequently went to Cambridge, Mass., for a short course under Dr. Richards, of Harvard University.

In June, 1886, he was appointed to the professorship of chemistry at the Ontario Agricultural College, Guelph, a position which he filled with marked efficiency, teaching and illustrating the principles of chemistry and showing their practical application to agriculture in such a way as to make the subject one of much interest and profit to the students in attendance at the college.

Soon after his appointment at Guelph Mr. James married Miss Fannie Crossen, daughter of the late James Crossen, of Cobourg, and commenced housekeeping in the Royal City. Mrs. James was a noted entertainer, and an invitation to her hospitable home was much appreciated by both students and professors. The only child in the family is a bright and promising boy.

In 1891 the Hon. John Dryden, Minister of Agriculture, chose Mr. James for the responsible position which he now occupies as Deputy Minister of Agriculture. In this position Mr. James has many and important duties to perform—preparing the reports of the Provincial Bureau of Industries, looking after the publication of agricultural bulletins and reports, attending to a large correspondence, dealing with the public in absence of the minister, and representing the department on the public platform throughout the country; and in all these capacities he has shown himself the right man for the place—able, tactful and courteous. His work in the department soon proved him a good executive officer, and his visit to different parts of the province has established his reputation as a public speaker, always clear, vigorous, instructive and pleasing.

Mr. James is a member of the Board of Regents of Victoria University, and President of the Ontario Historical Society. For a number of years he spent time and money in collecting books and other publications on the early history of Canada, and not long since he made a unique and very valuable donation of Canadian historical works to the library of Victoria University.

As an author Mr. James is well known to the people of Canada by the excellent elementary work on agriculture which he wrote a few years ago. This book is authorized for use in the public schools of Ontario, Nova Scotia, New Brunswick, Manitoba and the Northwest Territories, and an American edition has been published by Appleton & Co. for use in schools across the line.

ORCHARD MANURES.

IT is not too late to apply soluble manures to fruit trees. If it is desired to encourage growth in a fairly healthy tree apply, say, from a quarter to 2 lbs. of nitrate of soda on the ground round the area of the roots. Sprinkle it on the ground evenly well out from the trunk, and fork it in; later rains will wash it down to the roots. The quarter of a pound mentioned is for a tree two years old, and the 2 lb. for one, say, 10 or 12 years old. An old warrior may have more.

If the tree makes good growth but does not fruit well, on no account apply nitrate of soda, or other nitrogeneous manure. In this case potash may be useful, but the best plan is to omit all manure and summer prune, allowing no shoots to grow more than a few inches. Not only nip off the shoots, but rub off all that are too close together.

For trees which bear, but the fruit is not as fine as you think it ought to be, an application of nitrate of soda, superphosphite, and sulphate of potash may be desirable. For a tree, say 6 ft. to 8 ft. high, and as far across, perhaps 1 lb. nitrate, 3 to 6 lb. superphosphate and 1 lb. potash may be scattered over the ground round the tree from 3 ft. to 5 ft. from the trunk, and forked in.—*Garden and Field.*

STEADY GROWTH OF TOMATO INDUSTRY.

IN response to an inquiry about the extent of the canning industry in his country, the American Agriculturist has received the following fromW. G. Dawson, vice-president of the Pennsylvania Horticultural Society: Since 1870, when the first canning house was established in Dorchester county, Md., the industry has steadily grown, and in 1902 there were twenty-four canneries in operation. Peas and tomatoes constitute the bulk of the pack. It is hard to understand why a large amount of corn is not packed in a section so well suited for growing this crop. It is interesting and instructive to consider briefly this canning industry, which has assumed such large proportions in many sections of the country. Let us take, for example, the one Maryland county just mentioned, and the one item of tomatoes.

During the past packing season the output was 500,000 cases, or 12,000,000 cans. A conservative estimate of the value of this product is $850,000. To obtain the necessary fruit, there were 5,000 acres cultivated in tomatoes, under contract between grower and canner. The actual packing is all done in about two months. In this particular section the crop is contracted at so much per ton. Usually the price is $6 per ton, though $8 to $9 per ton was given the past season. The yield has a large range—all the way from three to fifteen tons per acre. As the entire Delaware and Maryland peninsula, comprising twelve counties, is very largely interested in this canning industry, this one example gives some clue to the magnitude of the business.

THE BITTER ROT IN APPLE.

THIS evil, to which reference was made in our December number of last year, is a serious one in some sections, and alarming because progressive. A few years ago we observed the first indications of the pit marks upon some fine large Baldwin apples grown in our lake shore r-chard at Maplehurst. We thought little of it then, supposing it would soon pass away; but each year since its first appearance it has been spreading, until now it has shown itself over about forty acres of orchard, rendering unsaleable a large quantity of the very finest samples of Baldwins, Spys and Kings.

Like the apple spot, at first it seemed to be confined to a certain limited number of varieties; but alas ! it has now attacked many sorts which we counted immune from its ravages. Ben Davis, for example, which is such a vigorous grower, and so little subject to codling moth with us, is not exempt from bitter rot, nor yet the Hunts-

man, that fine new dark red Illinois apple, which brings almost double the price of Ben Davis.

Stinson (Mo. Fruit Sta. Rept. 1900) says he had much more difficulty controlling Bitter Rot with Bordeaux than scab. In one experiment, for example, he sprayed his Ben Davis five times, and yet only 60 per cent. of the fruit was free from bitter rot, while on unsprayed trees practically the whole crop was ruined by it. In another part of the orchard he had a little better success, with only four sprayings, for 78 per cent. was free, while on trees untreated only 14 per cent. was clean. Speaking of the Huntsman, he says it was sprayed three times and gave 83 per cent. free from bitter rot and 92 per cent. free from scab; while on unsprayed trees only 48 per cent. was free of bitter rot and 69 per cent. of apple scab.

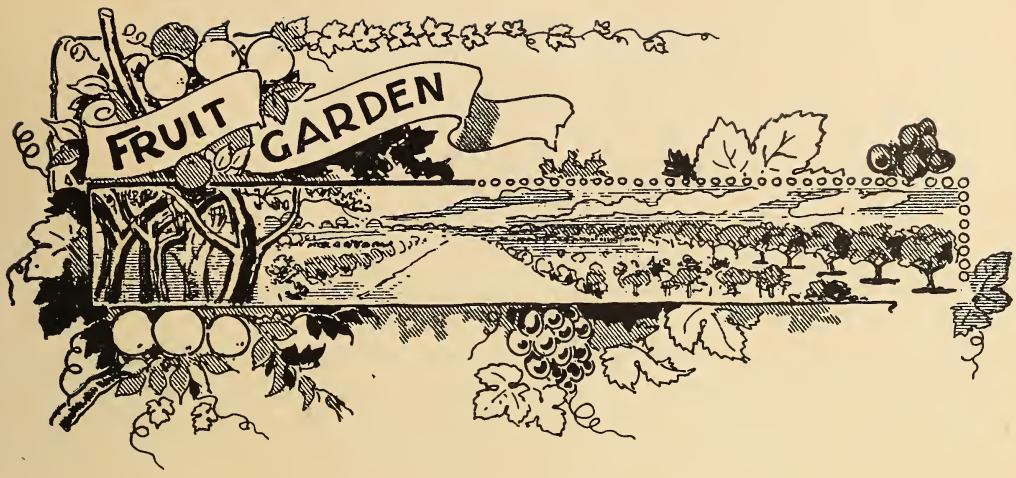
SHIPPING GRAPES TO BRITISH COLUMBIA.

SIR,—In the October number of the Horticulturist you refer to the possibility of shipping grapes from Ontario to British Columbia, and express the opinion that the distance and expense is too great. You are, however, probably aware that small shipments have been received here. Early last season some large shipments were made by Mr. A. Finbow, of Beamsville, who kept the local market well supplied for two or three weeks, when he withdrew, in order to avoid over-supplying a limited demand and consequent reduction in price, on receipt of a telegram informing him that a shipment had arrived from Mr. Wm. Fretz, of Jordan. The fruit, for the most part, arrived in good condition, in three and four pound baskets, and each shipper, we believe, received about $300 each from sales, about one-half of which would be paid to the express company. Of course the grapes had to compete—and they did so successfully as to price, after netting the shippers about 3c. a lb.—with the California article, chiefly the large, sweet varieties, immense quantities of which are sold in British Columbia, and which will not be easily displaced. However, if the two gentlemen referred to propose to ship next season, we would advise that some understanding be arrived at in order to avoid over supply and loss.

By the way, speaking of California fruit, one cannot help but deplore the fact that, owing to superior methods of packing, and packages, this article finds such ready sale in preference to the Ontario fruit where brought into competition in the Northwest and British Columbia markets. Reasonable rates and choice fruit value will not secure and hold the trade—the baskets, packages and boxes must be so constructed as to display the fruit to best advantage. Certainly it is wearying, to say the least, to note the time being wasted and markets lost while Ontario fruit men meet in their annual gatherings and discuss at great length the value of this new expensive crate, that new fancy box, this and that method of packing. Why not adopt the methods of packing, boxes, crates, baskets and all, of the Californians, than which there are none better, import expert packers, if necessary from the Pacific State to visit the different centres and instruct the growers; discontinue these useless discussions and make an organized effort to place the Ontario fruit in every town in Manitoba and the Northwest.

As a result largely of the adoption of Californian methods, British Columbia shipments of fruit to those points are increasing rapidly, and, in a few years, unless Ontario growers and shippers bestir themselves, this province will supply and control the entire market of the Territories and prairie province, notwithstanding the superior flavor of the Ontario fruit.

Vancouver, B. C. A. W. FINBOW.



CO-OPERATION IN THE FRUIT INDUSTRY

SUMMARY OF ADDRESS DELIVERED BY W. A. MacKINNON, CHIEF OF THE FRUIT DIVISION, DEPARTMENT OF AGRICULTURE, OTTAWA, BEFORE THE MEAFORD FRUIT GROWERS' ASSOCIATION.

I.—ORCHARD MANAGEMENT.

TO be really effective, co-operation should begin with the planting of the orchard, or rather with the selection of varieties. The group of growers who are united for the purpose of making a profit out of the product of their orchards should agree in advance to plant only a few of the very best commercial varieties which succeed well in the soil and climate which is at their disposal.

The CULTIVATION of the orchard should be uniform and thorough, the object being to apply such methods as will yield the best results. It will not do if some of the growers are careless or haphazard while others are giving their orchards every possible chance to do good work for them.

PRUNING also is a matter of the first importance, and should be thoroughly attended to from the start—all the orchards being pruned on the same scientific principles.

SPRAYING must be carefully done and by experienced hands, or it will only lead to discouragement. A group of growers could well afford to possess a power spraying outfit amongst them, and to make it the business of a couple of men each year to spray all their orchards in succession.

The object of co-operative orchard management should be to secure from all the members a *high average quality of fruit,* and to minimize the percentage of "culls," which will be a drag upon the commercial operations to follow. We have assumed that the members are just beginning to plant, but co-operation can attain at least part of its good results in the case of old orchards. These may be top-grafted to profitable varieties, may be gradually pruned into shape, and kept clear of insects and fungus diseases, while they may be brought under cultivation if the circumstances warrant such a step. In many old orchards the first thing to be done is to remove one tree out of every six or eight in order to admit sufficient light and air to those that remain.

2.—GRADING, PACKING AND MARKING.

GRADING is the most essential step towards successful marketing of fruit. It is particularly true of the British markets that they are continually asking for large quantities of fruit of one quality and of one variety. The most serious complaint they have to make against shipments from Canada is that they are "irregular." It should, therefore, be the object of a co-operative association to place considerable quantities of uniform grade and variety upon the market. This they are in a position to do, if all the members will send their fruit to a common packing house, where it can be impartially graded by experienced hands. The brand which the association has adopted will soon become well known as being thoroughly reliable, and there will almost certainly be a demand far greater than the members are able to supply.

The PACKING of the fruit when graded should be carefully looked after, especially when shipments are sent to distant points. All packages should be tight when commencing their journey, and high class fruit will carry best in boxes, the tender varieties being wrapped individually in paper.

MARKING, if properly done, will be the only introduction which a buyer will require. It should be so thoroughly reliable, both as to variety and grade, that inspection will never be required—unless it is to ascertain how the fruit has stood a long journey. The marking should also include a clear and attractive advertisement for the co-operative association which is shipping the fruit. Pencils and chalk should not be used for the essential marks on any package of fruit; either a well cut stencil or a large rubber stamp should be employed.

3.—MARKETING.

MARKETING is a word which covers two operations, namely those of buying and of selling. Dealing with the latter first, it will be apparent that if the fruit of a number of growers is judiciously distributed in markets where the demand is greatest, and if accounts are kept by one manager for all, there is likely to be a great advantage gained and a great economy effected.

A similar economy will result if all material, such as poisons, packages, implements and so on are purchased wholesale by the manager and distributed to the members as they may be required.

Finally, a co-operative association can, through its manager, obtain much more attention and consideration from transportation companies, commission men and others with whom they may have to deal, than would be accorded to the members if acting individually. "In Union is Strength."

SALEM GARDENS.—The city of Salem, Mass., at least the old colonial city of Salem that still remains, is semi-city and semi-country. It knows nothing of lawns or even of front gardens. The houses stand in uneven lines on or near the street, with no suggestion of nature about them until one passes through to the rear. Then he finds himself looking out upon a most ample and entrancing old garden, surrounded by a high board fence extending back for hundreds of feet and filled with fruit trees and old fashioned flower beds wirh box borders. In the retirement of one of these old gardens one is almost as secluded and nature-begirt as in the woods and fields of genuine country. But of all this little is known by those who do not find their way into these secluded spots.—*Country Life in America.*

CO-OPERATIVE EXPERIMENTS IN RECORDING THE YIELDS FROM INDIVIDUAL TREES OF THE SAME VARIETY.

BY

W. F. MACOUN,

HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

AT the Central Experimental Farm, Ottawa, the crop of fruit from each individual tree is recorded every year. One is thus able to tell at the end of a series of years how much each tree has borne. The yields for the past five years were recently tabulated, and great variations were found in the total yields of trees of the same variety planted at the same time and growing under practically the same conditions.

As instances: One tree of McMahon White apples yielded 36¾ bushels, while another planted at the same time and under practically the same conditions yielded only 17 1.16 bushels, or less than half as much.

One tree of Patten's Greening yielded 17 1.16 bushels, while another tree only yielded 3 15-16 bushels, less than one-fourth as much.

A young tree of Wealthy yielded 47¼ gallons, while another of the same age only yielded 12 gallons.

Experiments are now being conducted at the experimental farm by top grafting with scions from productive and unproductive trees, to determine how far the productiveness and unproductiveness of the trees is constant. The individuality of trees has long been noticed, but few figures have been published to prove this. The results obtained at the farm are hence of particular value.

If scions from productive trees will develop into productive trees when grafted, and if scions from unproductive trees will produce trees which are poor croppers, it is very important that scions should be taken from the best yielding trees. This is done by some fruit growers.

In order that fruit growers may obtain more knowledge of the great variations in yield of trees of the same variety at the same time and under the same conditions, we desire to start a co-operative experiment.

On application to the Horticulturist, Central Experimental Farm, Ottawa, six pieces of zinc, bearing six consecutive numbers, with wire attached, will be sent to each person. These pieces of zinc when received should be attached to six bearing trees of a single variety of apple, pear, plum or peach, the trees to be the same age and growing under the same conditions of soil and culture. The yield from each tree should be written in lead pencil on the zinc when he fruit is harvested. This yield should include the windfalls, and the windfalls gathered should be marked as such on the zinc labels. The quantity of picked fruit should also be marked as picked fruit. If it is not convenient for the fruit grower to record the yields in the orchard on the pieces of zinc as suggested, he may record them in his note book direct.

When convenient later in the autumn, the yield for the year should be entered in a note book, the number of the tree being entered so that the yields from each tree may be kept separate. The yields from these trees should be recorded until it has been fully demonstrated that one tree is or is not more productive than another. All that is asked of the experimenter is to report the yield

from each individual tree each year to he horticulturist, Central Experimental Farm, Ottawa.

As grafting will, in all probability, become much more general among fruit growers in the near future, the importance of knowing that trees vary widely in productiveness is easily seen. If the fruiting habit is continued in the grafted scion, as has been fairly proven by experimenters, it is most important that scions should be taken from he most productive trees bearing the finest fruit.

PLANT STUDY—TERMS EVERYONE SHOULD KNOW.

BY

W. CLEMONT MOORE.

A KNOWLEDGE of some of some of the the terms usod by botanists, and why they use them, we are sure cannot but prove beneficial to all of those who are beginners in the art of floriculture, hence we proffer the following lesson on some of the parts of the plants, which should first be considered.

Cryptogams—Plants which do not bear flowers. Fig. 1 represents a cryptogamous leaf.

Phanerograms--Plants which bear flowers. This class of plants presents a wide and varied collection. Fig. 2.

Embryo—The beginning of plant. Fig. 3.

Fibrous Roots—Are those which send out fine rootlets, but have no main stem. Fig. 4. Fleshy roots are principally biennials, that is, they complete their growth in two years. Fig. 5.

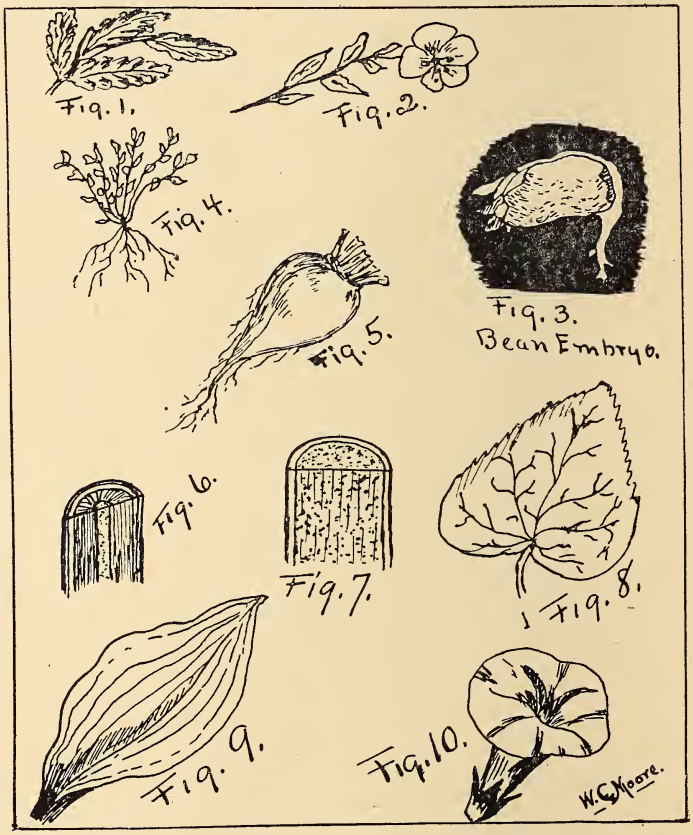


FIG. 2587.

Exogenous—Applied to stems whose wood fibres are in regular circles around a central pith. Fig. 6.

Endogenous—Stems whose wood fibres are arranged irregularly through the stem instead of the form of a circle. Fig. 7. Net-veined and parallel-viewed leaves are shown in Figs. 8 and 9 respectively.

Calyx is the small circle or cup which holds the flower. Fig. 10.

WHEN TO PRUNE

FROM THE 20TH CENTURY FARMER.

SOME one has said that the time to prune is when your knife is sharp. It can hardly be said that one time is as good as another, yet we do not believe that the season of the year makes any great difference. Each season has certain advantages and disadvantages. A wound made in June will probably heal quicker than if made at any other time, and for this reason June pruning is generally recommended.

We cannot entirely concur in this recommendation, and for several reasons. In the first place, one cannot see as well how to do the work when the tree is covered with leaves as when the limbs and twigs are bare. Another objection is that growth is at its height at this season, and the removal of a part of the tree causes a shock by disturbing the sap circulation. The injury thus produced is quite serious if a large amount of wood is removed.

Pruning is a deadening process, especially when done during the growing season. An injury which checks the growth of a tree causes fruit buds to form. This is one of the results of June pruning, as it is then the buds are forming for next year's crop. Pruning at this season is sometimes recommended on this account. However, it is seldom necessary to stimulate the production of fruit buds. The problem generally is how to get good fruit from those buds which do form. June is one of the very busiest months of the year, and, other things being equal, a season when other work is less pushing should be chosen.

Winter is a good time for cutting out dead limbs of large trees, but the weather is usually too cold for the delicate operation of pruning young trees. Pruning outside of the growing season is objected to on the ground that the wound dries out and does not heal over readily. The cut edge of the bark dries back farther than if the wound is made during rapid growth.

Spring pruning sometimes results in the sap exuding from the wound, similar to the "bleeding" of a grape vine pruned during the growing season. Pruning trees while dormant sometimes causes a troublesome growth of suckers or water sprouts. It does not stimulate wood growth, as some would have us believe, for the more a tree is pruned the slower will it increase in size. Where a part of a limb has been removed the rest will grow faster than before for a little while, but this increase in growth will not make the limb as large as it would have been if a part had not been removed by pruning.

Dormant pruning does not check growth and deaden a tree as does early summer pruning. Sap circulation depends upon leaves, and when a portion of these are removed a corresponding portion of the circulation is checked and the shock is felt clear to the roots. When a tree is dormant there is no growth to check or circulation to disarrange. The pruning simply leaves the tree with a larger proportion of roots than limbs, causing a more vigorous growth in the limbs which remain.

As was stated in the beginning, we do not believe that one season is so very much better than another for pruning. We have endeavored to throw some light on the subject in order to help each one to decide the question for himself.

The ideal time to remove a limb is just as soon after it starts as possible. Every limb is first a bud, and it would be better to rub off the bud than to allow the limb to grow and then remove by cutting. However, it is seldom practicable to prune in this way, though it is possible to remove most limbs which need removing while quite small.

IMPORTANT FACTORS IN PLUM CULTURE.

BY

PROF. F. A. WAUGH,

MASS. AGRICULTURAL COLLEGE.

THE principal factors which go to make up the variety as it is known to the practical plum grower may be roughly enumerated as follows: 1, hardiness; 2, habit of growth; 3, fruitfulness; 4, pollination affinities; 5, resistance to disease; 6, season; 7, quality; 8, ability to stand shipment. Plums vary greatly in this quality; but in almost every locality the list of varieties which may be relied on is so large that growers have not been very attentive to this matter. In the northwestern states only, where winters are very severe, it has been found that none but the Americana and Miner-like varieties can be depended on; and consequently they have practically supplanted all others.

Many plums now in cultivation are cursed with the most objectionable habits of growth. This is true of the native plums as a whole, and almost without exception, They are wild and wayward growers. They seldom make good, nicely shaped tops. They may be symmetrical and comely enough during youth, but old age brings out their wild and untamed nature. They resent pruning and training. The tops get so full of zigzagging twigs, dead branches and thorns that the blackbirds can't get in to build their nests and are obliged to fly away to the apple orchard. I think that those enthusiastic western plant breeders who are bending their most praiseworthy energies to the production of native plums with larger fruit and thinner skins, might well spend some pains to get a variety with a tree amenable to the practices of civilized horticulture. There are very few plum trees, however, of any type or class, which make comely, manageable trees. Burbank is sprawling, and Wickson grows too straight and willowy. Gen Hand makes too much wood, while McLaughlin doesn't make enough. These things have to be taken into account in the selection of varieties.

Most varieties bear too much and too often. Many varieties will bear themselves to death if left alone. There are few sorts which one need reject on account of shy bearing, though there are a few, of which Gen Hand and Wickson are perhaps examples. For the rest, the grower has rather to plan for careful thinning of the fruit. The grower should select somewhat carefully with a view of proper pollination. This, however, is a subject by itself, and has been so often discussed of late that we may safely let it pass here.

The principal diseases which attack the plum are monilia, or ripe rot of the fruit, and black knot. Both of these diseases can be controlled by proper management; and the careful plum grower will therefore take small thought for the selection of varieties which shall be exempt. Most of the so-called "iron-clad" and "immune" varieties, moreover, have proved not to be so ironclad nor so immune when it came to the test. We used to hear that the Japanese plums were not subject to the attacks of the black knot; but we now know better. There are measurable distances among varieties in their susceptibility to disease, and this may be a consideration, though hardly ever a prime consideration, in the selection of varieties.—*American Horticulturist.*

WILLOWS AS FUEL.

BY

W. RICKARD, M. P. P.,

NEWCASTLE, ONT.

WE have in our Dominion a great country—great in extent, great in its natural resources and undeveloped wealth, great in its future prospects, and destined to be the home of many millions of people. We are so situated geographically that the question of a supply of fuel will ever be an important one. While we have practically inexhaustible mountains of coal in the far east and in the far west, and doubtless much more yet undiscovered, notwithstanding all this, as far as we are concerned, what we call old Ontario is almost entirely dependent upon a foreign country for a fuel supply. We all know that in the back countries wood has been the principal fuel for people living in the country. We also know that in many of the old settled portions the supply of wood is almost entirely exhausted, and it is somewhat strange to me that practically no effort has been made to replenish the same. I consider the question of reforesting by propagating forest trees on land not valuable, also on the highways and along line fences, not only for the purpose of providing a supply of fuel, but for other purposes as well, to be one of the most important that can occupy the attention of not only the farmers and land owners of the country, but also the earnest and serious consideration of every legislative body in our Province of Ontario, from the local municipal council up to the Legislature. I know of no more important subject, nor one in which some of the surplus could better be spent than in helping on the good work of propagating forest trees.

But to come down to the matter of a practical suggestion to the farmers or land owners of my own county, Durham, applicable more especially to the front townships, let me say, while I strongly advise a liberal and judicious planting of trees on all side roads and concession roads, and other appropriate places, with a view to gain benefits in various ways, I want further to say that of late it has come very forcibly to my mind that the much despised willow may in very many instances be used to good account. In a great many cases there will be found some spot on the farm that might be considered waste land, and where there may be running water or abundance of moisture. In such places I would say, go right to work without any delay and plant the willow. It is easily planted, will grow rapidly, and in a very few years you can cut the top off for firewood, thus securing a partial supply of fuel that will for certain be out of the reach of labor strikes or industrial contention—a supply that will be found on your premises and which will cost only the cutting. I venture to say that if this suggestion is acted upon, where the conditions are favorable, some one will unhesitatingly say that a good thing was done.—*The Sun.*

TRANSPORTATION OF FRUIT

CHARGES TOO HIGH—COMPLAINTS AGAINST THE EXPRESS COMPANIES—PILFERING OF PACKAGES—FREIGHT ACCOMMODATION INADEQUATE.

THE Niagara Peninsula United Fruit Growers' Association is the rather formidable name of a very progressive body of commercial fruit growers who hold their meetings quite frequently in various parts of that district.

At one of their recent meetings at St. Catharines the following report was presented by Mr. C. W. Vanduzer, chairman of the transportation committee, and was adopted:

That having taken into consideration the present condition of the fruit industry of this district with regard to carrying companies, both as to services and accommodation furnished and rates of carriage exacted, we have arrived at the following conclusions, to which we respectfully call your attention.

TRANSPORTATION BY EXPRESS.

1. Owing to the very rapid expansion of the volume of trade in fruits during the past decade, the accommodation for receiving and handling shipments at many of the shipping stations throughout this district have become quite inadequate, considerable improvement in the way of suitable platforms and covered sheds is urgently needed.

2. Fruit being of a perishable nature it is very desirable that all shipments be sent forward as rapidly as possible after arriving at a period of maturity. Lack is proper help to receive and forward consignments promptly has however frequently resulted in loss and annoyance to the shipper and to his customers. Owing to frequent changes in the weather conditions it is essential that the shipper be allowed the latest possible moment previous to the departure of trains to prepare and deliver his shipment to the express company.

3. Numerous complaints of the pilfering of packages in transit have been made to your committee. This should be remedied and explicit instructions given company's employees, looking to the abatement of this evil.

4. The item of packages is a large and ever increasing expense to the shippers, and it is considered that in all cases when the consignee returns the empty packages in good order to the express company that they should be handled with care and some assurance given that they will be returned free of charge in good condition to the point of shipment.

5. It is the unanimous opinion of your committee that a substantial decrease in the rates should be insisted upon by this association. The present high rates in force have resulted in a very great hardship to thousands of shippers in a season of full crops resulting in many instances in the shipper becoming quite discouraged in his efforts to his fruit products, which, in consequence, frequently remain ungathered and lie rotting in the orchards. It is believed that a lower express rate would result at once in giving an impetus to he fruit trade, in doubling the volume of shipments handled by the express companies, and bring about a state of affairs which would be more satisfactory to producers, carriers and consumers alike. While it is felt that in a general way the rate is much too high, there are several points to which the companies should give special attention with a view to encouraging shipments, not-

ably the city of Quebec and vicinity and all points in Manitoba and the Northwest.

It is hoped that every effort will be made by this association to urge upon the express companies the necessity of a general revision of rates with a view of affording some relief to the shipper. We believe that such action will at once result in a substantial increase of the business of the companies as well as giving satisfaction to the individual fruit grower.

TRANSPORTATION BY FREIGHT.

1. The supply of suitable well-ventilated cars for the carriage of fruit shipment by freight is very inadequate. A large increase in the number of suitable care for this purpose is urgently needed.

2. A better system of handling local shipments and more prompt delivery is daily becoming more necessary. The volume of trade is now sufficient to justify the railroad companies devoting special attention to giving this commodity special despatch in local car loads as well as car loads.

3. It is again pointed out that a minimum of 24,000 lbs. of fruit in an ordinary car is altogether too great. This should never exceed 20,000 lbe., and it would be much better if only 18,000 lbs. as obtained in many of the fruit sections in the United States.

4. All classes of mixed fruits in baskets or boxes should be carried in car lots at the fourth class rate.

Apples and pears in barrels, which are now fifth class in car loads, should be put in class 8, which certainly carries as high a rate as apples. Shipments will stand leaving any margin whatever for the shippers.

TALK ABOUT APPLES.

THE old Scandinavian traditions represent the apple as the food of the gods, who, when they felt themselves to be growing old and feeble and infirm, resorted to this fruit for renewing their powers of mind and body, says the Chicago Record-Herald. The acids of the apple are also of signal use for men of sedentary habits whose livers are sluggish in action. These acids serve to eliminate from the body noxious matter, which, if retained, would make the brain heavy and dull or bring about jaundice or skin eruptions and other allied troubles.

The ancient practice of taking apple sauce with roast pork, rich goose and like dishes is based on scientific reasons. The malic acid of ripe apples, either raw or cooked, will neutralize any excess of fatty matter engendered by eating too much meat. Fresh fruits, such as the apple, the pear and the plum, when taken ripe and without sugar, diminish acidity in the stomach rather than provoke it. Their vegetable salts and juices are converted into alkaline carbonates, which tend to counteract acidity.

A good, ripe, raw apple is one of the easiest of vegetable substances for the stomach to deal with, the whole process of its digestion being completed in 85 minutes. Besides these medicinal qualities of the apple, it has great virtue for local applications. The paring of an apple cut somewhat thick is an ancient remedy for inflamed eyes, being tied on at night when the patient goes to bed. In France a common remedy for inflamed eves is an apple poultice, the apple being roasted and its pulp applied over the eyes without any intervening substance.

LAYING OUT AN ORCHARD

THREE objects should be considered in laying out the orchard: symmetry of appearance; economy of space; and facility for future care. In California, where millions of trees are planted annually, various methods are used. Many are now planting in what is known as the triangular or alternate system. This method gives more trees to the acre than the square system, and in case of apple trees, every other row can be planted to peaches. As the life of the peach tree is short, several crops of fruit may be gathered before any serious damage is done the apple trees, and before crowding, the peach trees can be removed. In laying out an orchard to be planted in this manner, take three pieces of timber one by two inches, and of the length that the trees are to be apart. Miter and

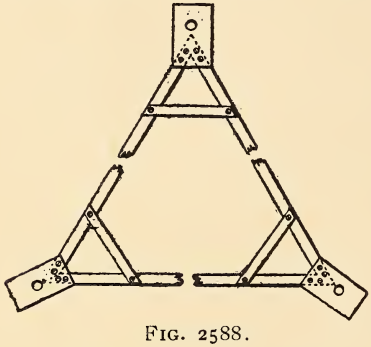


FIG. 2588.

fasten the corners together with pieces one inch thick and six or eight inches in size. These should be fastened firmly with two-inch screws. To make the triangle strong, the pieces should be turned on edge. After the triangle is fastened together, measure off the exact length it is desired to have the trees apart, and bore an inch hole through each corner of the boards, being careful that the holes are exactly the same distance apart. Place the three braces across the corners, and the triangle is completed. Stretch a line or a wire on one side of the track to be planted, the proper distance from the fence, place two corners of the triangle exactly on the line and set a stake through each hole on the line, also one in the third corner. Move

FIG. 2589. PLANTING BOARD.

the triangle along the line, placing one corner over the stake and the other corner on the line and drive the stakes as before. After the first and second rows are staked off, only one row is staked at a time, while the two corners of the triangle are kept over the last row of stakes. There should be a person at each corner of the triangle.

After the stakes are all set, bore an inch hole in each end of the board, four inches wide and six or eight feet long. Cut a notch in the centre, place it against the stake, drive a stake through each hole in the end of the board, and remove the centre one. The hole is then dug, and when ready to set the tree, lay the board over the stakes and place the tree in the notch. The same plan can be used in laying off an orchard by using a square instead of a triangle. All the measurements must be exact, or the triangle will not fit when placed over the stakes. In this way it is no trouble to keep the rows straight, no matter what length they may be. The stakes should be fifteen to eighteen inches in length, and somewhat smaller than the inch holes in the triangle, so that they will work easily.

FIG. 2590. ORCHARD PLANTING ON THE TRIANGULAR SYS

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

HOW EVERY CITIZEN CAN IMPROVE HIS NATIVE TOWN.

DR. FLETCHER'S ADDRESS BEFORE THE RENFREW HORTICULTURAL SOCIETY.

DR. FLETCHER began by a reference to and commendation of the good points in the town noted on the letter paper on which he had been communicated with; and from this stated the broad difference which was apparent between the border towns of Canada and the States; the comparison not being favorable to the Canadian towns. The Americans blew their own horn a great deal more loudly, but they endeavored to live up to it. Yet there was no country on this globe so good to live in as Canada; it was without an equal, and was getting to itself every comfort and luxury. Renfrew had done well already in the way of advancement, but there were still some things to be improved. The American believes he lives in the best town in the world. If the people of Renfrew became imbued with the American idea, and believed that theirs was the best town, they would do more to make it so. Prosperity comes from bringing outsiders in. What could each citizen do to improve the town. First, be proud of the town; second, do everything possible to back up that pride. Definite action was what was necessary. Renfrew evidently had an active mayor and an active M. P., and the rank and file must now move forward with a definite purpose. Each must remember the whole time that he was a citizen and that it was his duty to make the place attractive. Since he had come to town he had noticed some places with nice gardens; but more without them. This could be improved and at little expense. A few creepers over a verandah add greatly to the appearance of a place. No papers or broken sticks should be left lying about. One person setting a good example in improving the beauty and tidiness of his premises was quickly imitated. At Ottawa Lady Minto had taken an interest in improving the city and had offered prizes to the persons who improved the general appearance of their house and grounds. To start the work of civic improvement, begin with the home garden; and incidentally Dr. Fletcher remarked that the young man who didn't care for flowers and babies was hardly worth associating with. People who love flowers are happy, are considerate of others; selfishness does not thrive among those who love flowers. Among the shrubs which he particularly recommended for planting were Rudbeckia (golden glow) and Spirea van Houti. The large flowering Japanese hydrangea was also good, easily propagated, and in clumps of three or five is very beautiful. Three or five are better than four, getting

rid of the evenness. Avoid straight lines. Have natural curves. Perennial phlox was good, and of out-door geraniums he mentioned particularly Carmen Sylvia (white), Sam Sloan (crimson), and Jacqueminot (crimson). The Rambler roses were beautiful. He thought they could be grown here—(Mr. E. H. Stevenson from he audience said certainly they could)—but would need protection in winter. Nothing was of so much importance in the beautifying of a town as grass. Touching on this point Mr. Fletcher denounced "Lawn Grass Mixtures." What was wanted was not a mixture of grass of different texture and different colors, but one grass. Nothing was better for a lawn than our own Canadian "June" grass—also known as Kentucky blue grass and spear grass. A little White Dutch clover might be put with it, if desired. Dr. Fletcher spoke of the advantage to Renfrew people of having nurseries here, from which they could get good and tried trees and shrubs. He also at different points in his address quoted from "The Hints for City Improvement," printed on a large card by the Hamilton Civic Improvement League, a copy of which was lying on the speaker's desk. He thought it would be well if the whole list of "Don'ts" was published here. Touching the hint "Don't Spit on the Sidewalks," he remarked on he great change that had come over the Americans in the last few years. It was noted as a nation of "spitters." Yet to-day comparatively little spitting was done on the streets or in the cars there, simply because the people had come to the conclusion that they might do harm to others, might spread consumption, by spitting. For considerably more than an hour Dr. Fletcher held the interested attention of his audience, by a pleasant address in which there was incidentally introduced much teaching of high morality. After several questions had been answered by Dr. Fletcher and the chairman, a vote of thanks, proposed by the mayor and Rev. W. M. H. Quartermaine, was heartily carried and tendered to the speaker of the evening.

THE OLD FOREST TREES.

Sir,—On page 59 of the February number some one finds a big fault with the new settler for "guilty thoughtlessness" in not leaving here and there as he clears the forest away to make a farm, "single specimens of those grand old maples, pines, elms, etc., to be the chief ornaments of the homestead, etc." Now, every one knows some of something, but no one knows all of everything. Those "settlers" know quite well that it would be utterly useless to leave one or more of those grand old trees for ornament, because the first gale will bring them down. Where they grew they had the protection of other trees, and so did not root strong enough to stand alone. The observing man will note that the edge of old forests is always tangled more or less by uprooted trees where exposed to strong winds. No, ornamental trees must be planted, and should be very young so they can prepare anchors as fast as they are set sail. But I do think settlers are "guilty of thoughtlessness" in not planting ornamental trees as soon as the streets are properly lined out, and also thickets for sheltering stock yards. How grateful we feel to those who went before us, when we see the streets shaded by beautiful trees. Sometimes their beauty is marred by crookedness, too close planting, etc., but they did the best they could, and we will do well by doing better, according to our privileges and light. But better or worse, by all means plant trees.

Berwick, N. S. D. C. Crosby.

CIVIC IMPROVEMENT WORK

HINTS TO OUR SOCIETIES—WHAT TO DO AND HOW TO DO IT—PARKS—BATHS—BILL BOARDS—COLLEGE STUDIES—SCHOOL GARDENS.

BY JESSIE M. GOOD

IN "THE HOW OF IMPROVEMENT WORK."

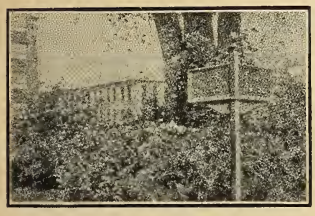


FIG. 2591. SIGN NAME FOR STREET.

HAVE you parks and open squares as breathing places for the people? Have you public playgrounds for your children? This one matter of public playgrounds in all towns is of vital importance. When the influence upon the character and morals of children of healthful play, under the care of a watchful, high-principled man or woman, is fully understood, no money will be spared to provide such playgrounds, and a new profession, that of play professor, will be among the honorable and well-paid callings.

The possibilities of such playgrounds are almost unlimited. What mother would fear to send her boys to the public playground if she knew that awaiting them was a man who could teach or oversee them in their games and athletic sports, noting and repressing evil tendencies in speech and manner? On occasion such a man would take them on fishing and swimming trips and excursions through field and forest. The woman teacher has charge of the girls' plays and games, and teaches to both sexes—without seeming to teach—botany and nature study and kindness to birds and beasts, until even boys will see a bird, or cat, and a stone in juxtaposition without desiring to pick up the one and throw it at the other. This is not a fevered dream of mine. In a modified way these playgrounds are being tried in various cities with the happiest results.

Are there any provisions for public baths in your town? Interest the young men of your town in this matter. Have your casinos, where the social life of your town may find expression? Have you a public library? If not, and your town is too small to support one, there are ways of obtaining traveling library cases. If your state library has no provision for distributing to the people the books your taxes so expensively house, petition your legislature until these books reach the people who need and want them.

The disfigurement of streets and landscapes by bill boards and advertisements is a nuisance that is attracting the attention of many of the best men, both at home and abroad.

What practical teaching are the public schools of your state giving the children regarding its agricultural resources? What, may I ask, becomes of the students and graduates of our expensive agricultural colleges? I never met one of them. Let us have the students of these colleges most thoroughly and broadly taught in the sciences of agriculture, forestry, botany, arboriculture, bee keeping, pisciculture, the culture of silk worms, and all else pertaining to an intelligent knowledge of such things; and then in our public schools let these young men teach the sciences they have learned. The electric railways which are fast webbing our country roads are making the centralization of country schools not only possible but so much more economical than the old

system, that the adoption of this system is only a question of time. The school commissioners of the county in which I live have been asked to build two of these central schools.

The school garden should be a part of the curriculum of these schools, both in the city and country, as it is in Germany, Russia,

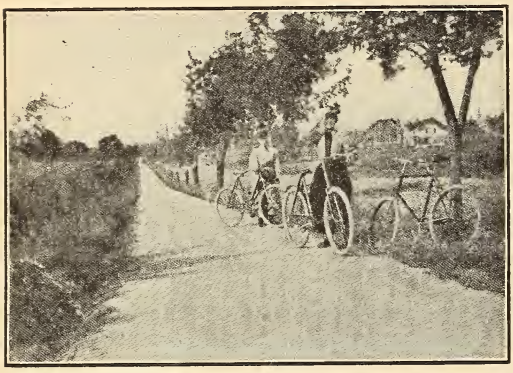


FIG. 2592. CYCLE PATH.

France, Sweden, Saxony, and a few other European countries. Children so taught will have a greater respect for country living, and when a boy understands that it requires quite as much ability to make a farm pay as it does to make a store profitable, and that the independence and prosperity of a nation so largely depend upon its agricultural supremacy, then and not until then may we hope to have a long line of cultured country gentlemen, the class that has made England such a delightful land in which to dwell.

* * * * * *

If there is one family in your neighborhood that is particularly obnoxious by reason of its untidy premises, by all means invite all its members and treat them with all the courtesy and tact you possess. You may find to your amazement that this family will take a heartier interest and do more work than many whom you rightfully expected would aid you. If you are successful in winning such people to your side you have accomplished at the start one of the objects of improvement association work. It is a singular fact, but one often proven in our work, that a tactful woman who will show a little human interest in such families, and will share flower seeds and cuttings of plants with them, will do more to develop in them a spirit of right living than many generations of slum workers who proffer an impertinent patronage. There is an instinct in the human heart that resents the feeling that any one is better than we. This is a divine instinct, to be encouraged rather than repressed; for when self-respect is dead beyond repair, hope is dead.

I dwell particularly upon the importance of winning the members of such families to your side, because without their co-operation your work will fall short of its full usefulness. Their premises will be a continual eyesore and they can do much to hamper you. Their children may destroy your shrubs and flowers and trample paths across your lawns. I have learned to know that envy more than maliciousness it at the bottom of nearly all this cutting of shade trees and pulling up of flowers. If their own innate love of beauty is gratified and their civic pride aroused, vandalism of this sort will be almost unknown. If you cannot get the parents to come, get the children, one after the other. If they will not come to you, go to them and give them flower seeds and show them how to care for them. You will win them in time.

* * * * * *

Be exceedingly cautious in the selection of your officers for the first year. It will depend upon them whether the association fulfills the purposes for which it was organized, or adds another to the long list of societies that simply meet to pass resolutions condemning public officials for remissness, for which you are quite as responsible as they. Do not choose those wily old taxpayers who cheerfully join every public organization in

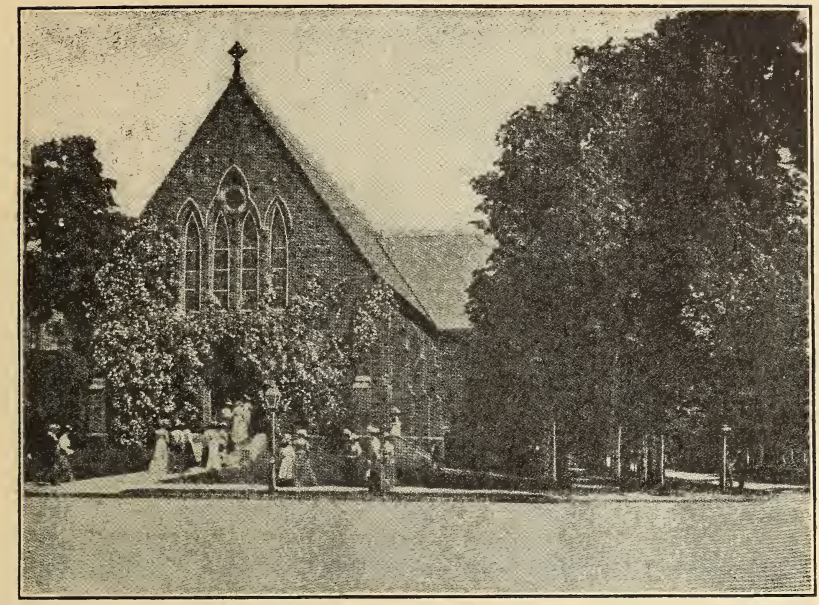


FIG. 2593. CHURCH OF ASCENSION, BUFFALO.

town in order to control it and keep their taxes down, and after killing all efforts at reform proceed with the usual routine of having the tax levy adjusted to suit themselves. Nor should you choose women who have run all church and social organizations until there is a feeling of rebellion against their further rule. Rather choose the most successful, go-ahead young business men and popular progressive women for your officers—people who make successes of their undertakings. Above all, do not in your public meetings abuse your city officials. Rather work in harmony with them. You will find it the wiser plan. If interest enough has been aroused to call a meeting in some public building there will be plenty of people present who will be able to conduct the meeting and its election in an orderly manner.

NOVA SCOTIA FRUIT GROWERS.

WE have received from Mr. J. W. Bigelow, president of the Nova Scotia Fruit Growers' Association, a copy of his annual address, which is printed for distribution. In it he reviews the fruit not planting ornamental trees as soon as the province, and the history of the association, which dates back to March, 1863, when a few public spirited fruit growers met at Halifax and had an organization effected; also points with pride to the free school of horticulture at Wolfville, established in 1894, and supported by voluntary contribution, in addition to a maximum grant from the legislature of $2,000 per annum.

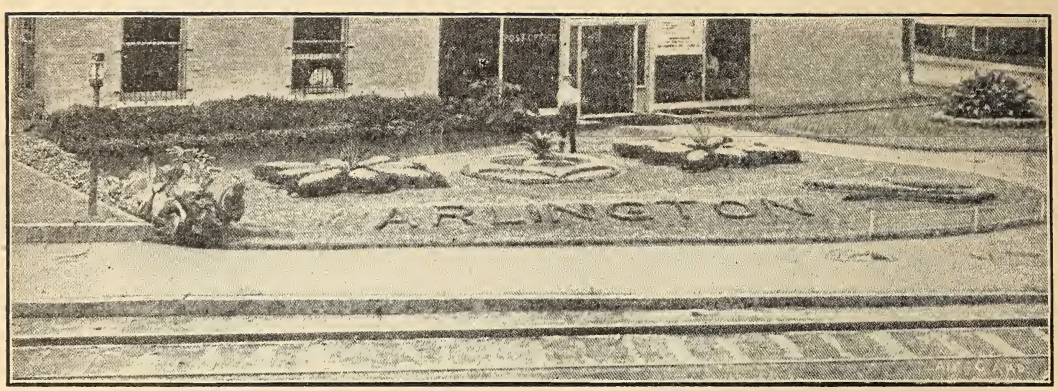


Fig. 2594.

RAILWAY GARDENING

In a recent issue we gave prominence to the pioneer work in railway gardening which has been done on the Boston and Albany railway, and expressed the hope that the great railways of our Dominion would catch the enthusiasm and make their station grounds attractive to the traveler, instead of an offence to the eyes of people of cultivated taste, as many of them now are.

A most praiseworthy movement in this direction is evident in many sections, and we hope soon to see it general over this whole continent. We notice, for example, that the Illinois Central is to establish a park at Normal to be well furnished with trees and plants; that the Chicago, Milwaukee and St. Paul is parking its station grounds at Wausau, under the direction of a landscape gardener; and that the Grand Trunk will surround its new station at Lansing, Michigan, with a park, plans for which have been prepared, the work to include grading, planting of trees and shrubbery, laying out walks, etc.

Recently the Boston and Maine offered cash prizes to their station agents for the best kept gardens, providing them also with a stated sum of money each for the carrying out of the work, so that all might be on an even basis. We are able to show views of the station grounds at Arlington, taken from the *American Garden*. For these grounds Mr. F. C. Morrow, the agent at Arlington, won the second prize in the system. He writes as follows:

"Figure 2594 shows two plots of lawn nearly square, the smaller one situated north of station and between station and postoffice building, in which you notice one single round bed. This bed has for its centre French Cannas, bordered first by red Alternanthera, next by yellow Coleus, and next, near grass, is a border of red Alternanthera.

"The larger plot, located south of station and between railroad tracks and postoffice building, has a triangular border covering two sides of the lawn. This border is composed of silver spot Salvia, bordered first by yellow Coleus, and next, near the grass, with red Alternanthera. In the corners of this border are round beds of brown Castor Beans and Caladiums. You notice three beds in the centre of the lawn. The centre round bed has for its centre a Sago palm. At the base of the palm is a five-pointed star of yellow Alternanthera, between the points

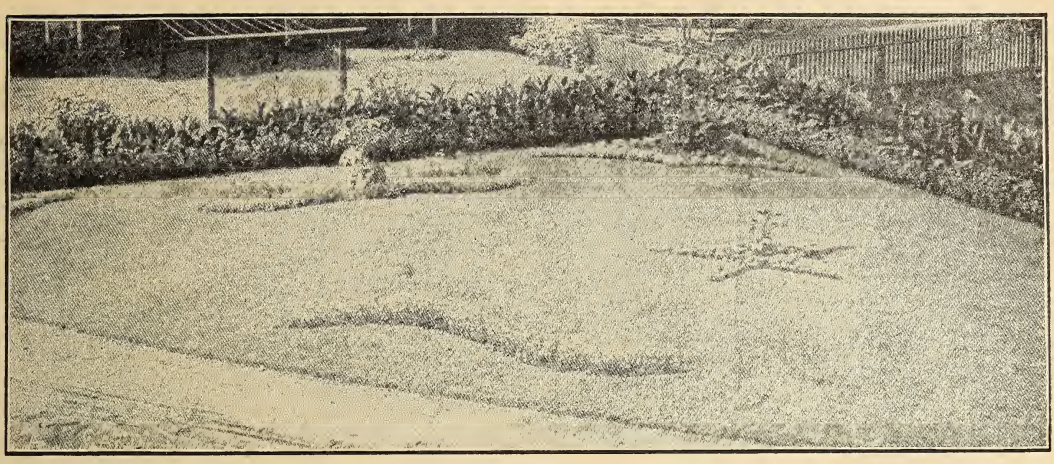


FIG. 2595.

of the star is red Alternanthera, next a scroll-like circle of Santolina, next oblong sides of yellow Alternanthera, and an outside circle of red Alternanthera.

"The two rosette-shaped beds each side of the centre bed have for their centre Cordyline amabilis. The dark lines are red Alternanthera, the white centres are variegated Stevia, border near grass yellow Alternanthera. In the right-hand corner of lawn you see a bed in shape of fleur-de-lis. This is made up of red and yellow Alternanthera and bordered with Echeveria. On a mound, raised so as to give passengers on trains a good view, you note the station name. This is of brilliant red Alternanthera, which contrasts nicely with the green grass, which is kept nicely trimmed. The individual you see in the picture is your humble servant, myself.

"The other figure shows a plot of ground triangular in shape, located a little north and back of the station beside driveway. This is bordered by brown Cannas faced with a border of Zinnias. In the three corners, only one of which shows in this picture, are triangular-shaped beds with scroll fronts. These have for centres French Cannas, bordered with Celosia or Cockscomb, next red Alternanthera, and the outside edge yellow Coleus. Between the two right-hand corners there is a bow-knot bed. The centre is a large Castor Bean, around the base of Bean are Caladiums, in the two bow ends are Asters, outside border Sweet Alyssum; along the side of plut you notice a scroll bed of Star Petunias, and in the centre of plot a star-shaped bed of yellow Alternanthera, with centre of brown Castor Bean.

"I have had seven gardens in all and have won prizes amounting to $250."

THE PÆONIA is a highly decorative plant and no garden is complete without a collection, for it can be had in nearly all the colors of the rainbow, and in some of the colors are so prismatic that they cast different shades as you move along and gaze upon them. The new types of single varieties are attracting marked attention and admiration, with their monstrous flowers from twelve to fifteen inches in diameter, with the exquisite coloring and massive center of golden yellow antlers.—*American Florist.*

MAKING A CITY PARK

AT a meeting of the American Park Association, held in Boston last autumn, we had the pleasure of hearing an excellent address by G. A. Parker, of Hartford, Conn., on "Park Construction." Among many other good suggestions he says:

"It is many times supposed that expert gardeners make desirable park men. Skilled gardening is desirable in park work, but the skilled gardener is seldom the man to manage the park as a whole, for to acquire his skill he must love plants as individuals, while park work is plants used in mass or the relation of a single plant to the composition of the picture as a whole, and in which it is only a part. It is not so much the question as to what plant is used as to where the plant is located. The gardener loves the tree for its own sake. The park man loves the tree on account of its position, and it is found that the skilled gardener, like the skilled engineer, wants to bring that which he loves best to the foreground for admiration. It may be said that the park man who loves his park picture as a whole is only doing that which he condemns in others; that is, he wants to bring that which he loves best before the notice of the public, and this is true, but in defense he can say it is the composition as a whole that gives the mental rest, the moral strength and that development of the love of the beautiful which is the peculiar mission of the park. A great deal of thought must be given to detail, yet detail should never be so distinct as to attract attention separate from the composition to which it is a part.

"The next point I want to call your attention to is that a park is as much a construction as a city hall or a bridge. The idea that a park is a piece of ground outdoors which can be worked much as a farmer works his land should be exploded, and cities should understand that when they undertake to build a park they have undertaken a work of a similar character, of as great importance, fully as difficult and intricate as building a magnificent city hall. The city officers can be housed in a barn which might be called a city hall, but it doesn't help the credit or give character to the city. So any old piece of ground can be called a park, but only to the city's disgrace. Any piece of ground can be made into a park, and I care not what its condition is, yet until it is so made, it is no more a park than a pile of lumber and brick is a palace.

"If a park was a construction which reared itself into the air as a building does, or suspend itself across space like a bridge, it would be at once recognized as such, and the necessity of science and art and money and skill in its building would be acknowledged. It is no less a construction than the bridge and the building, even if it lies on the earth, and yet we are so used to seeing the ground and trees growing spontaneously and naturally from the land, and the farmer and gardener, by plowing and planting, producing their crops, that it is hard to realize that the park differs from all this, especially hard as groves of large trees which are not disturbed are always desired and selected whenever they can be obtained, but, nevertheless, it is true that parks, in the science of art of their designing and mission, in skill and methods of construction and care, and in every other way except in appearance, location and form, are more nearly related to architecture, painting and sculpture than they are to farming, gardening or forestry.

"Another habit of the people which blocks the way to realizing the need of park construction and care is the consideration

usually given to grounds around the homes of ordinarily well-to-do persons in what is often called the residential sections of the city. Usually little attention is paid to the ground until the house is nearly completed, then the grader is called in, who recommends a 'nice growing grade from the house to the sidewalk.' The nurseryman suggests the planting of angles or borders, a walk is added, many times great efforts are made to have it curved when a straight one would be a hundred times better; trees are planted on the street line and one or two on the lawn, and the grounds are completed, with a tendency toward ornateness instead of that greater charm, simplicity. The owner usually has spent more than he expected in the house and desires to economize on the grounds. A hundred dollars or less is the sum often mentioned as the limit. All this means a low grade of work, want of thoroughness in the doing, and lack of satisfaction in results. It sets a low standard for the ideal. Now, if the builders of homes would recognize from the beginning that the grounds must cost for thorough work from 1-10 to ¼ what the house itself costs, and that they will cost as much to furnish as the average cost of furnishing a room inside, then the owner would find in his outdoor room of his home the satisfaction and contentment which ought to come from it. He would always have a library of nature's writings at hand where a new and beautiful book would open for his pleasure every day. He would have an outdoor art gallery filled with pictures of the most beautiful colorings, with statues of a most exquisite form, and besides that, and more in line with the purpose of this paper, his knowledge and appreciation of the best at his home would lead him to expect and demand the best for the parks of his city."

A FARMER'S FLOWER GARDEN.

THE plot chosen is one upon which snow lies continuously and deeply all the winter, thaws being rare and short in this region. In consequence the ground is kept free from frost, and as soon as the snow melts the Snowdrops and Crocus appear, together with the annual seedlings in great profusion, one after the other, as the temperature of the soil rises. Skill in the recognition of these seedlings by their seed-leaves is an essential element in the carrying out of the plan of this garden. Millions of them are scraped out by the cross-scorings of a narrow hoe, yet enough of all are preserved to entirely cover the ground at maturity. Thinning is systematically practiced with a view not only to uniform growth, but also to succession, the earlier blooming sorts being withdrawn to give place and space to later ones, and these to still later ones. A good deal of ingenuity is required, as well as judgment and precision, to secure successive clouds of bloom, changing in one week from one color to another, over sections and strips of ground. It is like the playing of a game.

An inexperienced person would be surprised at the vast quantity of cut flowers yielded by this inexpensive garden. Churches and private houses are decorated with its products and the guests of several large summer hotels are supplied with bouquets most lavishly. Though the garden was started without a thought of profit, as much money has been realized from it as could be gained by any other crop. But the chief benefit arising to the owner is in the mental and moral stimulus it affords, and the change from mere business farming to something in the nature of a fine art, however humble in reality it may seem to others. —*Vick's Magazine.*

FLORAL NOTES FOR JUNE

BY

WM. HUNT,

O. A. C., GUELPH.

WINDOW PLANTS.—Many of the foliage and flowering plants that have decorated the window during the past winter and spring should now be enjoying a period of partial or complete rest. This resting period is very necessary to many varieties of plants grown in the window, and is a feature of plant culture that is oftentimes overlooked or decidedly misunderstood by plant growers. There are few plants that do not require partial or complete rest at some season of the year, if good results are to be attained in their culture, and as outside window boxes are now the chief factor at this season for window decoration purposes, the summer time will be found to be a good time to give many of the winter occupants of the window a rest, or at least a change to quarters more suitable for them during the hot summer months. Palms, India rubber plants, Cordylines or Dracenas, Azaleas, Aspidistra, Fuchsias, Pelargoniums, Lobster and many other kinds of Cactus could be stood outside now under the shade of a fence or building, so that the plants get a few hours sun morning and evening and are shaded from the hot noon-day sun. Stand the plants on coal ashes or coarse gravel an inch or two deep. Coal ashes is the best material as worms dislike it. All of these plants, except perhaps varieties of the three last named, should have a good supply of water at the roots and sprinkled over the foliage occasionally. By keeping them fairly moist (not soddened) they will make good growth during the summer. The Fuchsias, Pelargoniums and Cactus should be watered more sparingly, but should not be allowed to become dust dry.

Many of the winter Begonias can be treated as recommended for the last named varieties, such as Begonia manicata aurea and B. Paul Bruant, being varieties that can be treated in this way, but they must not get too much water at the roots either from rain or from watering them.

Pots of Calla lilies can be laid on their side

in the shade and given no water until they are started into growth again in August. Pots of Freesia bulbs should be kept quite dry and the pots stood away in a dry shed until August or September.

Winter Flowering Geraniums.—Now is a good time to start preparing a few young plants of geraniums for winter flowering. Secure a few young, healthy, bushy growing plants of these, such as florists usually sell for bedding out at this time of year. Pot the plants into good rich soil in six or seven inch pots, according to the size of the plant. Plunge the pot in the ground up to the rim in an open place in the garden. Water the plant thoroughly when it requires water, two or three times a week perhaps, or every day in hot weather. Pinch off all the flower stems as soon as they appear, before the buds have time to open, and pinch out just the tips of the young shoots as soon as they attain the length of four or five inches. Possibly the tips of the shoots will require pinching out when they are first potted. The pinching out of just the wee small leaves at the tip of the shoot merely checks its growth and causes it to throw out more shoots down nearer the roots, thus making a nice bushy, stocky plant. This pinching will require to be done about once in every three weeks until the middle of August, when the plants should be allowed to grow freely, but the blooms can be kept pinched off until early in September, a week or so before the plants are taken into the window. Pinching off the blooms lessens the strain on the vitality of the plant and throws all the strength of the root into the growth, whilst the pinching keeps it bushy and symmetrical.

Cuttings of geraniums started now and treated as I have described, will make nice plants for the window before winter. Smaller sized pots will, however, have to be used than for the larger plants.

A little fertilizer of some kind, not too strong, given the plants during August, will help them considerably, when the soil in the pots has become partially exhausted. Once or twice a week will be often enough to apply the fertilizer. Weak liquid manure made from chicken or cow manure is very beneficial to all growing plants when growing out of doors, but is not suitable for application indoors, for sanitary reasons. Specially prepared commercial fertilizers or plant foods are best to use for window plants when the plants are indoors.

La Favorite (white), Jean Viaud (pink), Le Pilote (scarlet), Bruant (scarlet), C. Morel (scarlet), Mme. Charlotte (rosy salmon), are some of the best winter flowering doubles, whilst Gettysburgh, Mrs. E. G. Hill, Rev. H. Harris, Countess of Roseberry, Fanny Thorpe and Madonna will be found to be a good collection of single flowering varieties for winter.

Mme. Saleroi (silver leaf), Marshal McMahon (bronze leaf), Mrs. Parker (silver leaf), and Corrine (double flowering with golden foliage), will also make useful additions to window plants in winter.

Ferns in a Tree.—Ferns grow usually in deep, cool woods, and not in trees, as does a dainty little fern called the scaly polypody, which is found in beds high on the sides of branches of trees. They grow in a thick mat, completely hiding the bark, plant entwining plant. The roots penetrate the heavy outer bark of the tree, rot it and feed upon it, while the mass catches falling leaves and twigs and holds them until they have added to the bit of soil to contend with many dry summers.—*Country Life in America.*

Fig. 2596. Giant Flowered Petunias.

GIANT FLOWERED PETUNIAS

BY

WM. HUNT,

O. A. C., GUELPH.

THIS magnificent type of these ever-popular plants is certainly a great advance on the ordinary single type of petunia commonly seen in flower beds or borders. The immense size, as well as the beautiful form and texture of their fringed flowers, added to their gorgeously rich and varied pencilling and marking, at once attracts the eye of the flower lover. It would be impossible to even attempt to describe the many beautiful colors and tints to be found in a good strain of these petunias, ranging as they do in color from pure white to a deep claret purple, blotched, striped, pencilled and tinted with shades of almost every color found in flowers, so that to really get a correct idea of their beauty one has to see them growing naturally in the flower bed or border, or arranged in a shallow dish, as seen in the accompanying cut (Fig. 2593). This giant strain of petunia is not as free growing as the common type, neither is it as floriferous in point of the number of its flowers, but the beauty of the individual blossom more than compensates for these defects. It is to be hoped that those who are interested in the development of new types of this strain of petunia will be able to add the robust, free growing and floriferous habit of the commoner type to this giant flowering favorite of the flower garden. A shallow vase or dish of these beautiful flowers will alone make a splendid centre floral piece for a drawing room or dining-room table.

SOME FLORAL LEGENDS

BY

EDWARD TYRRELL,

TORONTO.

IN continuing my notes on the history and lore of plants, your readers will please bear in mind that I have collected these from various writers, the most prominent among them being Shakspeare, Phillips, Tyas, Kerner, Hibberd, Paul, Hole and others. Some are superstitions of old times, and there are redeeming traits in these old mythologies, "their floral ornaments and allegorical combinations of fruits and flowers are symbols of a divine idea." My desire is that young people (and older ones too if they will) should encourage a habit of learning more about trees, plants and flowers, because they become far more interesting when we have some knowledge of the region from which they came and the history connected with them.

Although for the present I am giving the histories of flowers, I do not wish your friends to think their gardening work should be confined to the culture of flowers alone, though Mrs. Hemans thinks that the fine passion for flowers is the only one, which long sickness with its chilling influences leaves untouched. In one of her poems she writes:

"Oh lovely flowers, the Earth's rich diadem,
Emblems are ye of Heaven and heavenly joy,
And starry brilliance in a world of gloom;
Peace, innocence and guileless infancy
Claim sisterhood with you and holy is the tie."

We should also be interested in all the branches of horticulture, and endeavor to realize by actual work the joys and pleasures connected with gardening, in the satisfaction that the meanest tasks are elevated even to dignity by the fact of their necessity, and to feel a pride that there is not one manipulation but that they can perform although their means may enable them to enjoy all the refinements of life. Hibberd says "that of all worldly occupations, gardening is the noblest, the most useful, and the one which promises the richest mental and material rewards."

This topic is interesting, but I shall leave it and continue my quotations, which this time are on the pansy and mignonette.

PANSY (Viola Tricolor).—The name pansy is derived from the French word "pensee," a thought. In floral language it means "think of me." This pretty flower, the favorite alike of poet, florist and rustic, is a species of the violet, not the little flower that perfumes the air, but a species entirely distinct both in its habit of growth, and in the form and color of its flowers. One writer says it was reserved for a young lady, aided by an intelligent gardener, to show the world the extraordinary variations to which the flower is susceptible. About 1810 or 1812 Lady Mary Bennett had a small garden planted entirely of hearts-ease in the garden of her father, the Earl of Tankerville, at Walton-on-Thames. This young lady was desirous of having as many varieties as possible, and at her desire the gardener, Mr. Richardson, raised as many kinds as he could from seed. From this small beginning the present passion for these flowers took its rise. Mr. Richardson showed them to Mr. Lee, of Hamersmith, who instantly saw the opportunities of making this a florist's flower.

Another writer says that about this time a Mr. Thompson, of Iver, England, gardener to Lord Gambier, commenced the cultivation

of this plant by growing Viola Tricolor and Viola Lutea together, and reserving seed from the larger and handsomer flowers, and by long culture and hybridizing with other species brought these inconspicuous field weeds and developed them into our innumerable garden varieties. The first great change was the conversion of the dark lines in the centre of the flower into a dark eye or centre, which at that period had never been seen, but is now considered one of the chief requisites of a first-rate flower.

This flower is rich in gentle names which appeal to our hearts. Besides Hearts-ease and Pansy, by which it is generally described, it has been called Herb Trinity, Love in Idleness, Kiss Behind the Garden Gate, Three Faces Under a Hood, Pink of my John, and many other names. The French called it "Herb de la Pensee," and Louis the XV. of France is said to have selected it as an armorial bearing for his physician, Quesny, who was remarkable for his thoughtfulness, and whom the king called his "thinker." The Italians call it "Little Flame," "Winged Violet, "Butterfly Violet," also "Mother and Daughter-in-law," and this strange name accords with that given by the Germans who call it "Stepmother." I am not certain, but I think one kind has entirely disappeared from cultivation. They were known as "Painted Ladies," the under side of the petals being white and the upper surface red or purple, so laid on as if to appear really painted.

MIGNONETTE (Reseda Odorata).—This plant is a native of Africa, and was introduced into England by Lord Bateman, who brought it from the Royal Garden of Paris in 1752. Mignonette is a French word meaning "Little Darling," and is too appropriate for this sweet little flower to be exchanged for any other. A branch of the Reseda was added to the armorial bearings of an ancient Saxon family (Count of Waltsheim), with the motto "Your qualities surpass your charms." The romantic story connected with it is too long for quotation.

ROSE INSECTS.

NO plant has more foes than the rose; rose chafers, beetles, worms and aphides attack it, and if not met with prompt measures they soon ruin the prospect of a rich rose harvest. It is always wise to anticipate their coming, and early in the season, before any are to be seen, dust the foliage, both above and below, with powdered hellebore, using a bellows or powder gun for the purpose, and applying it while foliage is wet with dew. The early application is, in every sense, "the ounce of prevention worth a pound of cure." Tobacco tea or tobacco dust will free the bushes from green aphis if applied thoroughly and in time. Cold water turned on with force, by means of a hose, thoroughly applied from all sides, sweeps many of them from the bushes. The rose slug, a slimy, worm-like pest, sometimes infests the bushes, eating the green substance from the foliage, and if not exterminated soon robs the bushes of their beauty and the roses of their support. This pest may be destroyed by tobacco dust, or, in fact, any of the insectides, or anything obnoxious in dust form.—*New York Tribune.*

THE HOLLYHOCK.

BY

HERMAN SIMMERS,

SEEDSMAN, TORONTO, ONT.

OF late years, unfortunately, the hollyhock has not been cultivated in our gardens as much as it should be, for it is one of the handsomest plants a person could wish to have for a background effect, and towering as it does with majestic effect over its small subjects, the annuals. The hollyhock is almost as easily raised from seed as the pansy, the pink and the carnation, etc., is; but the difficulty lies chiefly in carefully wintering them, which probably has been the reason for their partial extinction of late years. Hollyhock seed may be started in a cold frame any time during the month of June, and as soon as the plants have become sufficiently established to allow of them being handled, transplanted to any ordinary bed in rather a shady locality. Do not defer sowing the seed later than this month, as it is almost impossible for them to get sufficiently established to withstand the winter. My experience with them has been that if sown later than June they will invariably be frozen through the winter, and even sowing in June and subsequent transplanting will sometimes discourage the amateur; because the proper amount of covering required is somewhat puzzling. Too much is sometimes as bad as too little, for if we have a mild winter the plants, having been grown pretty strong, will probably rot with a heavy covering, and the same sometimes happens with the lighter covering. Therefore I would suggest a medium amount of covering, and to plant in a rather secluded spot. If the plants have properly wintered over, plant to their proper situation about the middle of April, as during the cooler weather of April they have a better chance to root, when they will be fully pre-

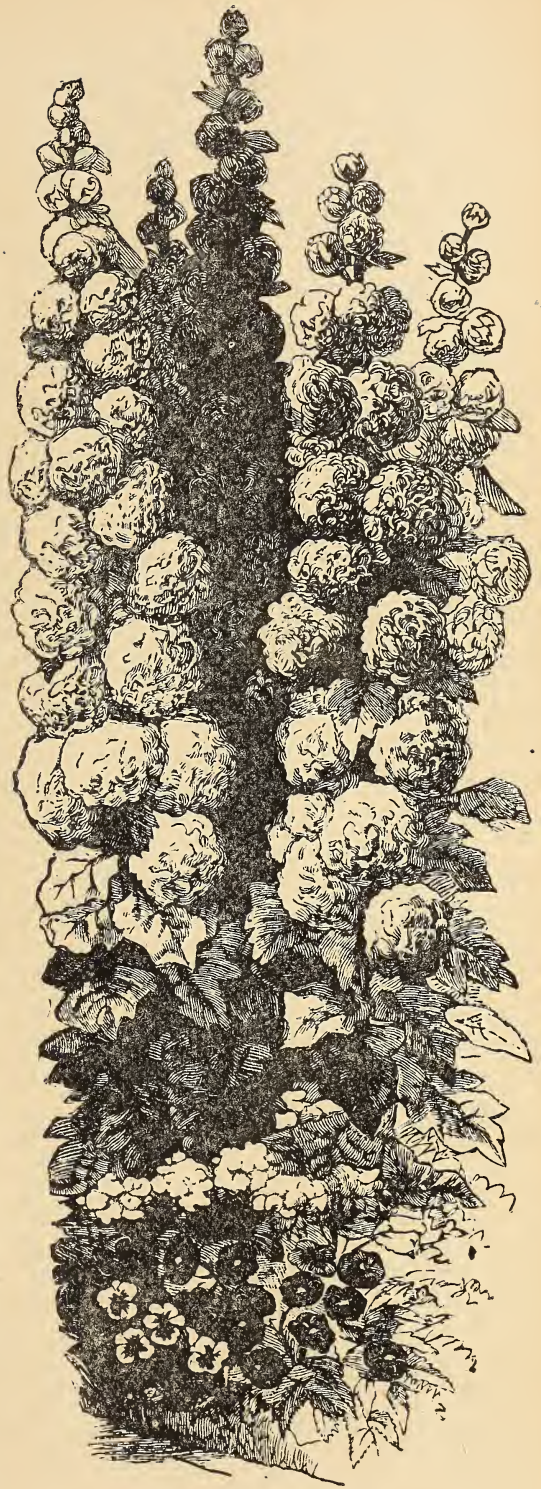


FIG. 2597.—HOLLYHOCK.

pared for the warmer weather to follow. I would suggest not to leave them where they were planted the previous summer, as frequent transplanting will strengthen their blooming properties. This, the June issue of the Horticulturist, will give amateure of the Horticulturist, will give amateurs ing seed for their plants for next year, and I only hope many will avail themselves of the opportunity of so doing in order to have one of the finest species of plants in their gardens, not on account of its value as suitable for cut flowers, but as a decoration for the garden.

ABOUT ROSES

MOST BEAUTIFUL IN THE MONTH OF JUNE—THE JACQUEMINOTS.

IT is the time of the roses! In every garden, ground, and on every lawn they give their beauty and their fragrance to every passer-by. The first surging wave of the opening summer breaks over our green hills bearing forward the high tide of the blossoming time of the queen of flowers. Roses are the perfect expression of the year's perfect month. It would seem that nature put forth all her subtile chemic force, all her arts and resources, all her power, to complete this particular floral expression of perfect beauty. There is but one real season for the roses, and that is brief. It comes in the fresh and peerless days of June, the perfected month—ere yet the scorching heats of the full summer are upon us, or the burning skies of brass have come. The roses bloom when earth and sky are at their loveliest and their best; and of all the charming time and scene, they are the most beautiful. Our northern slopes and meadows are at their freshest, fullest vigor, now—clothing all the world in robes in the deepest verdure. The brooks are full, the singing birds of the morning have not ceased—the thrushes and the orioles; the rollicking music of the bobolink is heard all day above the buttercups and daisies of the field. June's skies, themselves, with their

"Far-folded mists and gleaming halls of morn,"—

and the mists, to say nothing of the rains, are unusually abundant, this time—when they do, at times, roll apart, disclose depths of luminous smiling blue, far more charming than the unrelieved glare of the later summer. The season of the roses coincides with this time of general beauty in the landscape. Brief as it is, how exquisitely beautiful they make it! A rose garden is the most attractive part of the scene, wherever one finds it. Take a row, for example, of full-blown Jacqueminots!—what other rose, of all the queenly throng, can quite equal that royal flower—so deep, so rich, in its full-toned velvety scarlet. Even its half opened buds are more charming than those of almost any other rose. The "Jack," as it is now tersely and conveniently called, is indeed a splendid variety. One element of its beauty is the peculiar deep shading of its royal red, like some rich velvet. It is as fragrant, too, as it is beautiful. One can only regret that the beauty of the individual flowers is so shortlived. One day only is permitted to its full perfection of glowing color. Then it begins to dull down into a less and less attractive purple, and it is best for the sake of the bush, to remove it so that the crowding succession of freshly opening buds can have the most perfect succession.

Their time, at best, is short. Nature ordains that the highest transports of pleasure shall be brief, and the law holds good of her varied and fleeting forms of beauty.

Other roses of many kinds are now opening into full bloom—several sorts being, each of them, almost as beautiful as the Jacqueminots. The so-called "hardy perpetuals" have nearly displaced the so-called "garden" roses—those old style varieties which bloom only once in the year. The so-called "perpetuals" are in most cases miscalled by that name; for the greater number, in our gardens generally, are the kind called (more properly) by the French gardeners *remontants,* flowers which bloom again and again, but have distinct and separate periods of bloom, through the season—none of these periods producing such splendid effects as this first, fullest, best period of June; while the true "perpetuals" bloom on, in a modified way, regardless of times and periods. Of the *remonants* there are several superb varieties—one of the finest being the rich, clear, deep pink "Jules Margottin," which hold their beauty longer than the "Jacks," and their plump buds, opening so very slowly, are also very attractive. Almost any one of the dozen favorite kinds will be a valuable addition to any garden that lacks roses, provided it is a hardy kind. Nearly or quite every variety does better for some protection, in this climate. As to the endless army of insect enemies, which ruin roses and their leaves, it will be found almost impossible to exterminate them by any of the usual remedies, hellebore, arsenic, or tobacco; the best thing is to give the rose bush an abundant supply of fertilizer, over winter as well as in spring, and the resulting vigorous growth will do more to prevent these pests than all the vaunted remedies will do to cure them when once established. —*Exchange.*

ROSES WINTERKILLING.

I HAVE come to the conclusion that experience counts for very little in rose culture in a country like this, where no two seasons come alike. I have not been in the habit of covering my roses until about the beginning of December, believing that it was better not to cover them too early. Last year was a wet and sloppy season throughout, and the new growth did not appear to ripen. During the first part of December came that very cold snap, a thing quite unlooked-for, and being from home my roses were left exposed to it. I covered them heavily with pea straw immediately after my return, but the damage had been done. It might have been better not to have covered them at all, for the close packing seemed to complete their destruction. When I took the covering off this spring, about the 10th of April, all the new growth of last year was blackened to the ground, and something over two hundred bushes were totally destroyed. Many of them are shooting up again from the roots, but I will have little bloom this year.

I am not so sure that I did not cover too heavily, for soon as the straw was on there came a heavy snow fall which must, added to the straw, have had a smothering effect. First the unripened condition of the wood; secondly, the hard freezing, and thirdly, the close covering of straw and snow—to this combination of circumstances I owe my loss of 200 bushes and nearly all my bloom in roses for this season. Will there be a lesson in it for the future?

Mitchell, May 18. T. H. RACE.

EXPERIENCE WITH CANNAS

G. A. WOOLSON.

THE advent of Canna Austria marked an important era in the culture of these semi-tropical plants, which are now considered so essential to every lawn. The foretelling of its glory impressed me favorably, hence a fine specimen was duly installed in a prominent bed in my garden. Somewhere I had read that the variety "did best in poor soil." This I did not in the least believe, for I had had long and intimate acquaintance with cannas of many kinds, and had fully demonstrated their ability of appropriating for personal glorification the desirable elements in the richest and strongest soil which the ingenuity of man could concoct. Consequently I expected to break all previous records of the new acquisition.

Cow manure was liberally spread over the bed and the soil forked over and thrown out. Just what the excavation was filled with I positively refuse to tell. However, the reservoir was to serve as bank account for the plant to draw from later on. The soil was then thrown back and the bed got in shape. All went well for a while. Fine fresh leaves unrolled rapidly, but after a little they blanched strangely, turned brown and withered.

"Drench it with plain straight water," was the advice given, but of no avail. The roots had struck the reservoir, and deluging the soil only choked them with a bigger drink. My "center piece" was facetiously commented on. The roots were lifted in the fall, and as they were sound, but not vigorous, were ensconced in a 10-inch pot, given indifferent soil and placed in a sunny bay window. Liquid fertilizers were dutifully passed on to more appreciative cannas, nevertheless nothing but leaves resulted; these were good to look at, and Madam Crozy and Gen de Miribel made up all deficiency of bloom, showing what a canna should and could do indoors in midwinter.

Last spring I cut down the stalks and divided the root growth into thirds; two of these were repotted in ordinary soil and a moderate allowance of liquid fertilizer given occasionally, but out of door pot culture was no more fruitful than that indoors, in fact the foliage was less luxuriant, owing to the more rapid evaporation of moisture in the open air. The third section was located in the poorest vein of soil my garden could furnish; some water was of course given, but assuredly the subject was not "fussed with." As a result thereof there stands in that usually barren spot a robust plant stretching its glorious spikes of clear yellow to a height of six feet. Individual flowers measure fully six inches across, and the larger petals are fully two inches wide. Obviously Canna Austria is a law unto itself, a fact demonstrated at the expense of a little personal conceit.

A dwarf canna (Nellie Bowden) growing close by, looked quite like a small edition of its "lily-flowered" superior. It is the only canna which might properly be called dainty looking, and it is that in leaf and flower, as both are small, trim and slender. The color is a little deeper yellow and lacks the clear transparency of petal; the two smallest petals are stained with red much deeper than the faint dots of Austria. This is also a free bloomer out of doors, but has never done anything indoors. The extreme height thus far attained is 38 inches.—*Amer. Agriculturist.*

THE ESSENTIALS OF A GOOD LAWN.

THIS is the season when we are often asked how to establish a good lawn and insure its permanence. Downing names three essential requisites: (1) Deep soil; (2) proper kinds of grass, and (3) frequent mowing. For this climate I would add a fourth—that is, plenty of water. The air of an average American summer is not so well adapted to the production of a fine lawn as is the humid atmosphere of Great Britain. There not so much attention need be given to the richness of the soil, as the moisture takes its place in a measure. But in this country the soil should be deep and rich, with a subsoil capable of retaining moisture, but not in excess. If the subsoil is hard and tenacious it should be well under-drained and trenched, or subsoiled to a depth of sixteen or eighteen inches, so as to create a reservoir for holding moisture which may be drawn upon by the plants as needed during dry times. This matter of subsoiling does not receive the attention it deserves in our climate. Many persons seen to think that if the surface soil is in good condition nothing further is needed. Such persons should bear in mind that it is a deep soil only which will furnish moisture for grass roots through continued drought, so that the lawn will remain green during the entire summer and autumn.

Again, too much attention cannot be given to the preparation of the soil before the seed is sown. It should be plowed and replowed, cultivated, harrowed and rolled until the whole is thoroughly pulverized and mixed to a depth of ten inches. This work should be done in the fall, and then the plot should be left to settle all winter before the seed is sown. The foundation will then be firm. This not only makes a compact bed which the tender grass roots need, but it will insure the lawn against those little knolls and hollows which are so objectionable in appearance and do so much to obstruct the use of the mower.

Only two kinds of grass are really worthy of consideration for this climate. These are Kentucky Blue Grass (*Poa pratensis*), and Red Top (*Agrostis vulgaris*). There are a few others, such as Rhode Island Bent Grass, a finer kind of *Agrostis,* which may be sown, but it is more expensive and little superior to a good strain of Red Top. A little Sweet Vernal Grass, or White Clover, may be added, but neither is essential. The coarser grasses, such as Timothy, Orchard Grass of Meadow Fescue, should never be sown in a lawn. They are short-lived and too coarse and stiff to make a soft, velvety carpet. There are mnay lawn mixtures advertised and sold at high prices; some of them are good and will make excellent lawns; but, if analyzed, the best of them will be found to consist mainly of Blue Grass and Red Top, which may be bought in the market for from $1.50 to $2.50 a bushel.

To seed properly, from two to three bushels will be required to the acre, owing in some measure to the amount of chaff mixed with the seed. This should be sown as early in the spring as possible, so that the young plants may become well established before the hot dry weather of midsummer. The sowing of oats with the seed has been recommended as a protection to the young grass plants, but I have never yet found that a strong, gross-feeding plant like the oat would furnish protection to a delicate, slow-growing one. On the contrary, the so-called protector will rob the weaker plant of its nourishment. Red Top germinates much more quickly than Blue Grass, and will

furnish all the protection necessary, besides covering the surface with a green coat almost as quickly as oats will. After the Blue Grass gets its roots well established in deep rich soil it will need no further protection, but will assume entire control in a very short time.

The third essential is early and frequent mowing. If the grass is allowed to get too large before being cut, the stubble will be too stiff, and we lose that soft velvety character which is only produced by frequent mowing. It is time to begin as soon as the grass is tall enough for the mower to catch it. A few annual weeds which may make their appearance during the summer will do no harm, as they will be kept down by he mower and not allowed to ripen their seeds; but such perennials as the Docks, Dandelion, Plantains and their kind should be dug up as soon as they can be seen, and water must be in constant supply to feed the grass, keep it green and growing. The deep-soil preparation will help to do this, but he is fortunate who can draw on some reservoir for occasional irrigation. Where water is always abundant less care need be given to fertilization, otherwise it will be well to top-dress the lawn early every spring with thirty or forty bushels of unleached ashes and three or four hundred pounds of bone-meal or superphosphate to the acre. This will keep the grass in thriving condition. Barn manure is too unsightly, and should not be used except in localities where snow covers the ground all winter, and then it should be raked off as early as possible in the spring. By following out the suggestions given here in providing the four essentials, we may have as fine lawns in this country as they do in England; lawns which will last a lifetime and be a continual source of pleasure to all who see them.—*Garden and Forest.*

PANSIES.

I HAVE had in the heat of summer, where the sun lay till late in the afternoon, pansies an inch and three-quarters across, from seed two years old from the florist, and a ten cent packet in the beginning. I use a mixture of cow manure, partly rotted forest leaves and wood ashes. Three quarts of ashes to a bushel of manure is enough, but two-thirds of the soil of the bed of the manure and leaves is not too much for pansies. It makes no difference whether the manure is fresh or rotted, that I can see, but it is best to have it buried with a couple of inches of rich soil over it in which to set the seedlings.

A mulch of grass or leaves round the plants will keep the ground from drying, but if it is not rainy they should be watered every night. I think it is best to plant the seeds in a large box filled with the mixture mentioned, and in the same proportion; as the seedlings are rather slow in growth they can be cared for easier in this way when small.

Young plants beginning to bloom, covered with evergreen boughs during the winter, bloom best in spring and early summer for me. And seeds planted as early as possible in the spring do best for late summer and fall. Pinching out the heart of the plants when small will make them branch more freely.

During the summer the size of the flowers can be kept up by watering two or three times a week with water in which cow manure has been soaked till the color of strong coffee; you can hardly give them too much of it; if it gets on the leaves rinse them with clean water. Pick off the faded blossoms; if you want seed tie a rag round the largest, finest blossoms, and leave but one seed-pod on a plant till ripe.—*Vick's Magazine.*

The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

NOTICE.

Owing to the spring opening up so early, and to the great demand for premium plants this year, the nursery with which we made our arrangements for premium plants has run out of stock before all have been supplied. It was, therefore, deemed expedient by the executive committee to cancel all orders after May 15th rather than send out small or inferior plants to our subscribers. We now recommend that the delivery be suspended until the fall, and at that time bulbs or shrubs should be substituted. Further notice will be given in detail later in the season.

(Signed) G. C. Creelman,
Secretary.

Question Drawer

HAIRY VETCH.

Sir,—Please give me your experience with the Hairy Vetch as a cover crop. How much should you sow per acre? Will it ripen its seed in Ontario?

Answered by Mr. C. A. Zavitz, O. A. C., Guelph.

We have grown the Hairy Vetch in our experimental grounds at Guelph for fully six years. It has been sown in the spring, in the summer, and in the autumn. The autumn sowing usually comes through the winter well, and gives slightly better results than the spring sowing. It is a leguminous crop, which seems to grow well when the weather is warm, as well as when it is cool. I consider it one of the best cover crops

which can be grown in the orchards of Southern Ontario. The quantity to be sown per acre depends somewhat upon the requirements of the crop. A light cover crop can be obtained from sowing one-half bushel of seed per acre. A much better and thicker matting can be formed by sowing one bushel per acre. For the production of fodder it is customary to sow one and one-half bushels per acre, which amount usually produces a large amount of fodder of excellent quality. It will ripen its seed in Ontario, but does not produce very large yields. The highest yield which we have obtained has been seven bushels of seed per acre.

TREE PROTECTORS.

SIR,—I want a little information through the columns of the Horticulturist. I notice two different advertisements for the tree protector advertised in the Canadian Horticulturist. One is the Expansive Tree Protector Co. of Ontario and the other is the Tree Preservation Co. Will you please tell me which is the best, or is any of them any good, or has any leading fruit grower given them a thorough test, and would I need to spray my fruit trees as well; will the Aphis or any other insect get above the protector? I would like to get particulars from some experienced man.

Bruce's Landing, B. C. J. B. BRUCE.

Answered by Prof. Lochhead, O. A. C., Guelph.

In replying to Mr. Bruce's inquiry regarding the merits of the two tree protectors which are advertised in the Canadian Horticulturist, I shall deal with the questions in order. First, I cannot state which is the better protector of the two, for I have not had sufficient experience with them. Second, that neither of them are useless, and both possess some good features. Third, many fruit growers have given them a thorough test, and some of them recommend them, but many others prefer the burlap. Fourth, these tree protectors will not take the place of spraying. Fruit trees must be sprayed at certain intervals for the prevention of fungus diseases and insects of many kinds, only some of which can be entrapped by the tree protectors. The protectors will not keep away fungi, and applications of Bordeaux are necessary for their control. With regard to the Expansive Tree Protectors, I may quote from an article which I prepared for the annual report of the Entomological Society for 1902. "Recently another device for entrapping codling worms has been put on the market. It is known as the Expansive Tree Protector. It consists essentially of an expansive metallic collar, coated on its underside with a sticky substance, and a cloth band saturated with a poisonous liquid placed between the collar and the trunk of the tree. Although not in a position personally to test the device this year, I had an opportunity of inspecting many of them in different orchards. In nearly every case they failed to give satisfaction, and in some instances were positively harmful. In the first place they are difficult to fit to the trunk of the tree; secondly, the sticky substance did not hold the caterpillars, and other forms of insect life, or prevent them from crawling over it; thirdly, the poisonous band did not kill the insects which crawled beneath the collar; and fourthly, the bark of the tree immediately beneath the band was frequently seriously injured. In my humble opinion, decided improvements in the construction of this device must be made before it becomes effective."

VEGETABLE GARDEN.

SIR,—I have been reading your journal (the Canadian Horticulturist) for two or three years and always enjoy it very much. I have noticed the "Question Drawer" and desire to ask a question or two. My father has given me a large plot of ground and I thought if I could make a vegetable garden I might make some pocket money. What vegetable would be the most remunerative; also, is there any market where I could sell sweet peas and field daisies? I hope you will be able to find time to reply soon and that this isn't too much of an imposition on your valuable time.

Orangeville. FLORENCE ENDACOTT.

As to what are the most remunerative crops to grow can best be determined by experience of gardeners in your locality, as what does well and pays well in one locality is often a failure in another. If one has a good local market a large number of garden crops can be grown at a profit, but if the produce has to be shipped to a distant market it is better to make a specialty of a few of those crops which stand shipment well and are always in demand, such as asparagus, cauliflowers, celery, onions, potatoes, tomatoes, etc. We know of no market for sweet peas and daisies. These are usually grown in such abundance that only those who live in the large cities, who cannot find room to grow them for themselves, could be counted on as customers.

CLEMATIS FAILING.

SIR,—I have planted Jackmanii, Henryii, and other varieties of Clematis for three years in succession to shade a verandah having an easterly frontage, close to Lake Ontario. They are carefully planted, and do well until they commence to bloom, then something happens to them, the blooms droop: and the plant gradually dies. Out of the five Clematis planted last spring, only one survived the summer. I have found "cut worms" about the roots of some that have been destroyed, but could find none in this instance. Clematis on verandahs having a north and southerly exposure have always done well.

Prof. Hutt, of the O. A. C., Guelph, replies.

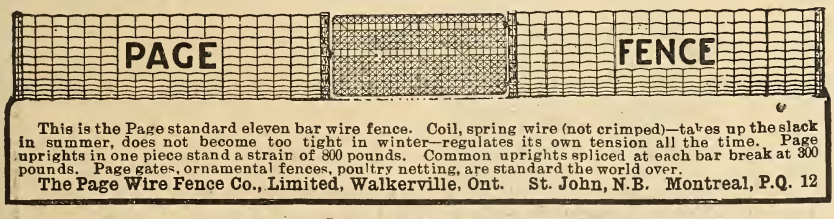
It is hardly likely that the difference in exposure is the sole cause of the difference in the growth of the clematis. It is possible that the excavation from the cellar may have been left on the eastern side of the building and not on the other sides, where plants have done well. This often causes the failure of plants grown near the house. In the case of the plants last year, starting well but dying off suddenly, it would appear that something like cut worms must have been at work. In putting out new plants where cut worms are troublesome, it is well to protect them by a band of stout brown paper inserted into the soil and encircling the stem for five or six inches upwards.

Open Letter

The Editor Canadian Horticulturist:

SIR,—When a horticultural society is flourishing I think it is a good thing to let others know it, so that those who are not making good headway may take courage. I am pleased to tell you that through the enthusiasm of two or three of our members our growth this year has been very good; our meetings also have had increased value by the recognition of our work. Mr. C. C. James (Deputy Minister of Agriculture) has helped us much with gentlemen from his department. In March Mr. Hodgetts gave us a valuable address on Insects, and on the 5th inst. Mr. W. Hunt, from the college at Guelph, instructed us fully and pleasantly on the Culture and Care of Roses. These addresses were much appreciated by our members and friends because they were useful. Mr. Hunt demonstrated his work on dormant and growing rose bushes, to show how to prune both root and branch. Vocal and instrumental music is kindly given, so that the evening is pleasantly spent. We have an exhibition of plants and flowers each month, points of excellence are made and recorded, and at the end of the year prizes are given. We are trying to do some good. Yours truly,

Toronto. EDW. TYRRELL, President.



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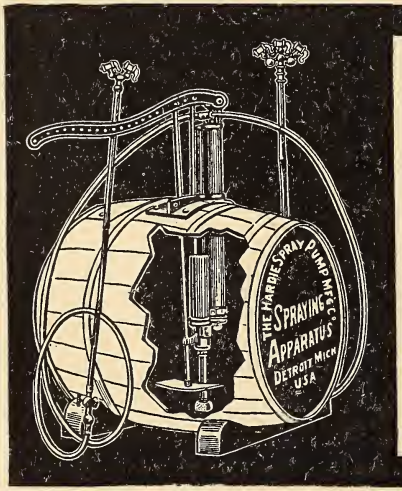

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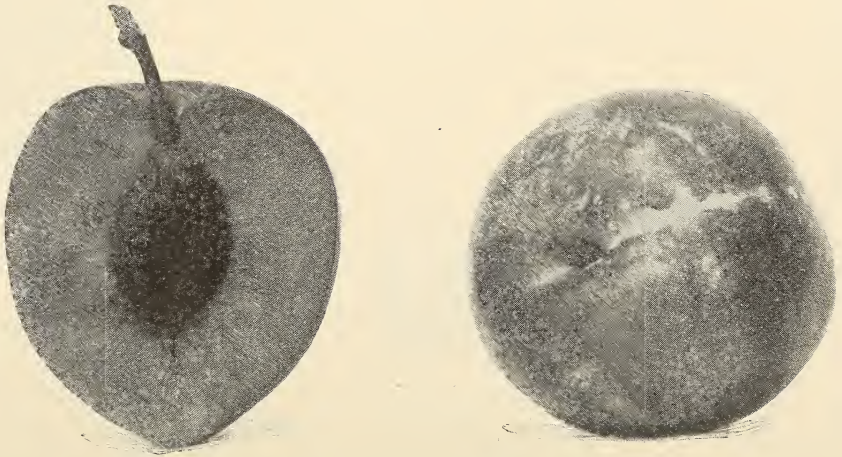

Fig. 2598. Chabot.

THE
CANADIAN HORTICULTURIST

JULY, 1903

VOLUME XXVI NUMBER 7

CHABOT

IT is only about twenty years since the Japan plums began to be propagated in America for commercial purposes, and it wonderful how quickly they have become distributed throughout the United States and Canada, while still almost unknown in Europe. Perhaps this is because the European varieties succeed so well there that the Japan varieties are not sought after in that country, while here the former class are subject to many drawbacks, such as black knot, plum rot, etc., from which the Japan varieties are apparently more or less exempt.

The Chabot first fruited at Maplehurst in 1902, and at once attracted our attention as being exceptionally beautiful in appearance and delicious for eating. It was imported from Japan by Mr. Chabot, of Berkeley, California, and afterward sold to Mr. Burbank, who introduced it to the trade in the year 1886. It has borne several names, as for example, Yellow Japan, Bailey, etc., but in justice to the importer, it is now generally known as the Chabot. A good many are puzzled over the pronunciation, so we may as well state that the accent is upon the last syllable, phonetically written it is "Shabbot."

This plum has been tested at our Georgian Bay station by Mr. John Mitchell, of Clarksburg, and described by him as follows :

"A very strong grower, of a large beautiful and stately top; bears the third year; fruit about the same size and shape as Red June, but not quite so conical; skin amber, and nearly covered with red spots and markings; very attractive; season late in September; very hardy."

At Maplehurst our record of its season is the first half of September, but perhaps it would be ten days later at Clarksburg. It did not bear the third year after planting with us, indeed it was about the fifth year before we had any samples. No doubt early bearing depends a good deal upon the soil; and our deep rich sandy loam encourages the production of too much wood and too little fruit. In respect to size also, it was larger with us than Red June, indeed, almost equal to Washington; but with us the crop was light, while with Mr. Mitchell probably it was heavy.

Everyone who has fruited it gives the Chabot credit for being the best Japan of its season, which is about two weeks later than Burbank. The flesh is yellow, and the flavor very pleasant, though inclined to cling to the stone.

Editorial Notes and Comments

HOW FRUIT BUDS ARE MADE.

THE common notion that fruit buds are structurally distinct from leaf buds is questioned by Mr. E. S. Goff (American Garden, 1901). He claims to have abundant evidence that leaf and flower buds are in a measure interchangeable; and that by proper pruning a flower bud may become a leaf bud, and that, by ringing, a leaf bud may become a flower bud.

Of course we all know the fact, without knowing the philosophy of it, that ringing, or wrinkling the bark, tends to the formation of fruit buds; and that dry weather is also conducive to the same, but why? Because such conditions are restrictions on the movement of the prepared food in the branches, and the surplus water in the sap is thrown up through the leaves, and the remainder becomes concentrated and rich in prepared food. Whenever, then, the water supply is increased, the tendency is towards growth and to the formation of leaf buds; and a decrease in the water supply, for the reason given above, tends to make flower buds.

Another significant fact is that as soon as active wood and leaf growth ceases, the formation of fruit buds begins, and may continue until cold weather sets in. This would encourage the present system of our best fruit growers, who cease cultivation in July or August, and seed the ground to a cover crop, thus causing early maturity of wood before cold weather. If a tree were too much inclined to wood growth, and too little to fruit production, it is evident that the earlier in the summer that cultivation ceases and the cover crop is sown, the more hope of a crop of fruit the succeeding year.

FIG. 2599. EXPERIMENTAL PLUM ORCHARD AT JOHN MITCHELL'S, CLARKSBURG,
Showing Clean Cultivation, Ready for Cover Crop.

IDEAL TILLAGE.

A GREAT change has come over the ideals of the Ontario fruit grower during the last fifty years. Formerly fruit trees were planted in the corners of the snake fences because they were supposed to need no cultivation, and the apple orchard was seeded down to orchard grass, never to be broken until the trees had to be taken out on account of old age.

Now we find the orchard will repay the owner for the most careful and thorough tillage, unless the desired results can be attained in some other manner. The ideal tillage of an orchard begins as early in spring as the soil can be worked, before it has begun to lose its moisture, and continues during the growing season of the tree or plant, which ends in July or August.

As has been shown in these pages by Prof. Reynolds, the rainfall in most parts of Ontario is amply sufficient for all vegetation, if it can be kept in the soil and not lost by evaporation or by cropping before the time when plant growth should cease and the wood mature in preparation for winter. Constant shallow tillage, by spreading a dust mulch over the soil two or three inches in depth, will wonderfully retain this moisture in the soil beneath, where it can be used by the trees or plants.

MANURE AND MOISTURE.

THIS conservation of moisture becomes doubly important when we understand the relation it bears to plant nourishment. All plant food is taken up in solution, so that if moisture in the soil is lacking during the growing season to dissolve the mineral plant foods, the trees and plants will get little benefit, no matter how much fertility may be in the soil, or how much fertilizer may be applied. In this possibly we may find an explanation of the frequent disappointment in the use of commercial fertilizers, which, in a dry soil, might remain sometime unused.

CONTROLLING THE MOISTURE.

ON the subject of controlling soil moisture the Farmers' Advocate makes the following pointed remarks:

Someone has said that the best crop to grow in an orchard or fruit plantation is cultivators. That is especially true this year, for it is seldom we experience such a dry spring, and the beginning of summer seems to bring no improvement in the situation. Now is the time moisture is needed. Trees and bushes and plants are now pushing their growth. Where fruit bearing has begun, an additional burden is imposed. In the absence of rain, we must do what we can to get moisture from the air, and hold what we have by means of the dust blanket or soil mulch, a frequent and shallow stirring of the surface soil. We cannot control the rainfall; irrigation is hardly practical here, and entirely out of the question over the parts where the land is rolling, but we can exercise a great deal of control over the moisture in the soil by frequent cultivation. It is the next best thing, and a means whereby we can do a great deal to counteract the effects of drouth. I believe the time is near at hand when we shall be doing this with our grain crops as well. The question of controlling the moisture is one of the biggest ones confronting the Ontario farmer to-day, as well as the fruit grower. We must use the cultivator.

ORCHARD TILLAGE AND MANAGEMENT.

H. P. GOULD, assistant pomologist in the United States Department of Agriculture, in Farmers' Bulletin 161, "Practical Suggestions for Fruit Growers," treats on tillage as follows:

As a fundamental factor in progressive orchard management, systematic tillage is a practice of comparatively recent introduc-

tion. While the practice has become quite general during the past few years, and is growing more so, the principles underlying the operation are not so fully understood as they should be. A better understanding of these principles will make the operation more effective, because it will be more thorough.

The offices of tillage are several. Among the more important ones are:

1. The setting free of plant food by increasing the chemical activities in the soil.

2. The soil is made finer and hence presents greater surfaces to the roots, thus increasing the area from which the roots can absorb nutriment.

3. The surface of the soil is kept in such condition that it immediately absorbs all the rain that falls during the summer, when it is apt to be dry. Little is lost by surface drainage.

4. Moisture is conserved thereby. Where the surface remains undisturbed for weeks the soil becomes packed, so that the moisture from below readily passes to the surface and is evaporated, thus being lost to the growing crop. If the surface is kept light and loose by tillage, so that the capillarity is broken, but little of the soil moisture comes to the surface and evaporation is not so great. In this way nearly all the moisture remains in the soil, where it can be used by the plants.

5. Thorough tillage has a tendency to cause deeper rooting of the plants. The surface of the soil is made drier by tillage during the early part of the season than it would otherwise be; hence the roots go where the soil is moist. The advantage of deep rooting during drouth is obvious.

The relation of plant food and moisture to the welfare of crops and the influence of tillage thereon should perhaps receive some further attention. Doubtless all farm crops —not excepting the tree fruits—suffer more from lack of moisture that they do from lack of plant food in the soil. All of the nourishment which the plant gets from the soil is taken in solution, and unless there is an abundance of soil moisture to dissolve the mineral plant foods it is evident that their presence in the soil, even in limitless quantities, could avail nothing for the good of the crop. The ideal tillage, then, is that which begins as early in the season as the soil can be worked, while there is still an abundance of moisture in it, and continues until mid season—that is, through the growing season of the plant. The aim should be to keep the surface, to a depth of 2 or 3 inches, as light and as loose as possible. This will be equivalent, so far is conserving the moisture is concerned, to spreading a mulch of straw or sawdust over the soil. The constantly moist condition of the soil under such a mulch is a matter of frequent observation.

But tillage, to be of value in fruit growing, must be practiced judiciously. If the soil is tilled when it is too wet, more damage may be done by a single cultivation than a whole season's effort in corrective methods can overcome.

There are cases where conditions will suggest that tillage of any kind is unwise. Such fruits as the strawberry, which produces its crop close to the ground and early in the season, obviously should receive little, if any, cultivation before the fruit is harvested. The practice of tillage, however, is correct in principle. The wisdom of the grower must suggest the proper application of it.

SOW A COVER CROP.

THIS is the month to cease cultivation of the orchard, and to seed it down to some cover crop; a course which not only lessens the labor of cultivation, but gives the busy fruit grower an opportunity to harvest his fruit during the autumn months. Oats or rye have been sown in some parts, but if rye is used it must be plowed under early in

spring or it will rob the ground of its moisture. Crimson clover is one of the best cover crops, where it succeeds; Mr. D. J. McKinnon, of Grimsby, has had excellent results with it, while at Maplehurst, an almost adjoining fruit farm, we have had failure during two successive seasons.

If once it takes hold, it helps to seed itself, so that if one can succeed with the first sowing perhaps the successive crops would be more certain.

We have had good success with Canada peas, sown in August, they furnish nitrogen and consequently improve the land. They are not destroyed by the early frosts. The cow pea has been much boomed, and in the Southern States it is perhaps the very best cover crop, but at the north it is killed out by the earliest frost.

THE HAIRY VETCH.

THE Hairy or Winter Vetch (*Vicia villosa*) has already been referred to in these columns as one of the very best cover crops for the orchard. It is not a rapid grower in the hot weather, but in the cool months of autumn it becomes quite vigorous and covers the ground completely. It is one of the best nitrogen collectors. Analysis has shown over 200 lbs. of nitrogen per acre, for a growing period of three and a half months, as the result of growing this plant. The only difficulty is the present scarcity of the seed. This, however, will soon be remedied, for the seed is easily raised, and if an orchardist can only procure a small quantity to start with he can easily grow sufficient for his own use each year.

OATS AS A COVER CROP.

TWO years ago, at a meeting of fruit growers in Rochester, we heard a representative fruit grower from Michigan say that in his state oats was the favorite cover crop. We have not yet tried it, but have several times mentioned it as possibly desirable, but usually the criticism was adverse because it would winter kill. None of the critics, however, have had confidence enough in it to try it, and therefore none of them could speak with authority. Now comes the report of the Michigan Station for 1901, in which the Horticulturist, L. R. Taft, speaks of oats as a cover crop as follows:

"Oats seeded alone as an orchard cover crop grew 15 to 18 inches high. They held snow and leaves well during the winter, lessened the freezing and thawing of the soil, and also prevented the soil from freezing to as great a depth as on uncovered soils. The lessening of the injury from frost is considered one of the most vitally important results to be secured with orchard cover crops. Where oats was used as a cover crop the ground in the spring was practically free from weeds and remained moist considerably longer than where other crops were used. The oats was easily worked in with a disc harrow, and it is estimated that the cost of cultivating the orchard when oats was used was fully one-third less than when crimson clover was sown. Rape and turnips used as cover crops, while fairly satisfactory, were unsightly during the winter and gave off an offensive odor. Crimson clover seeded with oats was less satisfactory than either sown alone."

APPLES IN THE ORILLIA DISTRICT.

SECRETARY CREELMAN, of the Provincial Department of Agriculture, and Alex. McNeil, of the Dominion Department of Agriculture, visited Orillia last month at the request of the Board of Trade, to look into the apple-producing capabilities of the Orillia district. The members of the Board of Trade did everything possible to put the visitors in the way of securing the information required. Committees were appointed to drive them from place to place,

and to arrange for meetings with representative farmers of the district. The visitors found more Duchess apples than any other one variety. For these there is a fairly good local market in the Muskoka district before the summer visitors leave the highland and lake country of Ontario. There is also a certain demand for the same variety of apples in the mining and lumbering country along the north shore. At most, however, this market is limited in extent, and there are quite as many Duchess produced now as there is demand for. Very few winter apples are grown about Orillia. The Peewaukee is grown more extensively than all the other winter varieties combined. These have given fairly good satisfaction except that the fruit, being large, is apt to fall from the limbs while the trees are young. As the trees grow older this fault is in a measure remedied.

The Wealthy, which is grown to some extent, has given splendid satisfaction, being a good yielder and thriving well. Messrs. Creelman and McNeil will recommend that no more early apples be planted, and that a number of the Duchess already planted be top grafted with winter varieties. The Duchess is not so satisfactory as the Tallman Sweet for this purpose; still it serves very well for grafting on. In winter varieties they recommend the Greening, Ontario, Ben Davis, Wealthy, and Baldwin as a list to choose from, with the preference of confining as much as possible to one or two of these varieties. The Spy does not seem to do well about Orillia, although it does remarkably well in the Georgian Bay district.

ONE CONSIGNEE.

WHILE we advise contract sales as the best in all cases where practicable, it is evident that there will often be a surplus unsold, which must go forward to the commission merchant. We must not, therefore, despise this middle man, who is often of the greatest service to the fruit grower.

Many, however, make the mistake of dividing their shipments, even in the same market, between several consignees. This is a great mistake, because it brings a man's fruit into competition with itself.

The wisest plan is to select one good reliable consignee in each city, and be as constant and regular in shipping goods to him as possible. He will soon learn the brand of his consigner, and make it known among the buyers, and will then often make sales in advance even of the arrival of the goods.

AMENDMENTS TO THE FRUIT MARKS ACT.

MR. E. D. SMITH'S bill to amend the Fruit Marks Act came up for discussion in the House of Commons last month, and was lost on a division. The aim of this bill was to provide for the inspection of fruit by Government inspectors before it was shipped, so that the responsibility for proper grading would rest on the Government inspectors. As the act now stands each packer must do his own grading and marking and become responsible therefor. The Hon. Mr. Fisher, in opposing the bill, said that no one should be as capable of properly doing the work of grading and marking as the packer himself, and that to inspect only ten per cent. of the packages, as Mr. Smith had proposed, would not sufficiently guarantee the quality. It would also be impossible to obtain a sufficient number of qualified inspectors at the season when they would be most required. The guarantee of the shipper, Mr. Fisher thought, would be worth infinitely more than any government guarantee, and the fruit grower, by a personal oversight of the grading and marking, had an excellent chance to build up his reputation.

Another bill by Mr. Henderson, of Hal-

ton, which provided for the defining of what should be second grade apples, was also lost on a division. The Minister of Agriculture agreed that it might be advisable to make a general provision in the act specifying what quality of fruit should be graded XX, and expressed a willingness to introduce an amendment for that purpose before the close of the session if it was thought necessary.

GERMANY SHUTTING OUT AMERICAN APPLES.

THE new tariff law of Germany, which will go into effect as soon as certain treaties have been made which must be negotiated in order to avoid complications that would arise under the new law, provides that between September 1 and February 1 no apples shall be shipped into Germany in packages, boxes, or barrels, or in any form except in bulk. This bars the crops of the United States and Australia. The crop of Canada was barred, anyway.—*London Free Press.*

POWER SPRAYING IN THE UNITED STATES.

MR. W. A. MACKINNON, chief of the fruit division, recently attended the large meeting held at South Onondaga, N. Y., in the Hitchings orchard, which has become quite famous on account of the unusual methods of management prevailing there. About 300 people were present at the meeting to witness the spraying demonstrations, to examine the orchard, and to study the system of cultivation which has made it such a success. The consensus of opinion among these practical orchardists was that power spraying was the only method suitable for large orchards, and that while individual fruit growers with small orchards might not find it profitable to purchase power outfits, yet by combining in the purchase and operation of the sprayer they could spray all their orchards much more economically than they could do it by hand.

In Delaware a few orchardists started to use gasoline as a power, with the idea that one outfit would be sufficient for several farms, but they have such large orchards that they have found it profitable to purchase a power outfit for each. Fruit growers from that State seem to be delighted with the new method. When told that the Dominion fruit division was giving orchard demonstrations to show our farmers the value of power sprayers, they were lavish in their complimentary references to the practical educational methods of the Dominion department. It was freely admitted that in such matters Canada is in advance of the United States. It is evident over there that the new system has come to stay, although with them it may be only the richer and more extensive orchardists who will take it up at first. In Canada, however, it is quite practicable for a group of farmers owning 3,000 or 4,000 trees among them to cooperate so as to have all their spraying done with a power outfit costing from $250 to $300.

NEW SAN JOSE SCALE REMEDY.

A NEW San Jose scale remedy is being tested with considerable success in the Niagara fruit belt. It is known as McBains' Soluble Carbolic Insecticide. No boiling is required. It mixes instantly with cold water. It is claimed to destroy all kinds of scale, fungus and parasites, and can be used for spraying in winter and summer. To one gallon of mixture add 25 of water in winter and 50 in summer. Use as a winter spray when the leaves begin to fall, and as a summer spray after the buds are nicely formed.

THE PEAR LEAF BLISTER

WE have several times received from subscribers in various parts of our province, samples of pear leaves having black corky spots upon them, and these were either a mystery to the senders, or else supposed to be either leaf blight, or scab. After consultation with Prof. Fletcher, of the Central Experimental Farm, we were able to reply that the cause of the trouble was a minute mite (*Phytoptus pyri*), belonging to the same order (*Acarina*) as the cattle tick, and the itch spider. Fig. 2600 shows an adult mite, greatly magnified. Indeed, these mites are so small that they cannot be seen without a glass, and to study their structures a first-class microscope is necessary.

Bulletin 61 of the Cornell Experimental Station, gives a most excellent account of this mite, written by Prof. Slingerland. To give an idea of their diminutive size, he says that it would take 150 of them placed end to

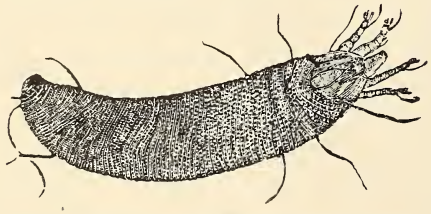

FIG. 2600. PEAR LEAF BLISTER MITE.

end, and 600 side by side to measure an inch. These tiny mites winter underneath the outer scales of the buds, fifteen or twenty having been found underneath a single bud scale. Thus situated, they are ready for mischief early in the spring.

The diseased portions of the leaves are really galls, produced by these mites, and within them the eggs are deposited; they are quite easily distinguished from the fungus spots by their blister-like corky appearance.

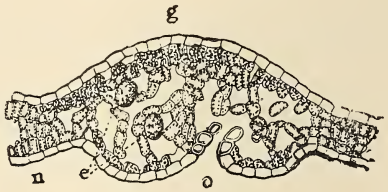

FIG. 2601.

Fig. 2601, from the bulletin referred to, shows a highly magnified section of a pear leaf through one of these galls, *g*, showing gall; *n, n,* normal structure of leaf; *o,* opening of the gall; and *e,* eggs of the mite.

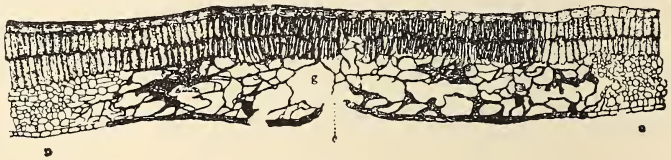

FIG. 2602.

Later in the season the galls dry and turn brown or black, and are more conspicuous on the lower side. The leaf in the meantime has shrunk to its normal thickness, as shown in Fig. 2602, in which *g* is gall, *n, n,* uninjured portion of leaf, and *o,* opening to gall from under side.

Various remedies have been experimented with, but the most successful one, according to Prof. Slingerland, is a thorough spraying in winter with kerosene emulsion diluted with from five to seven parts of water. Apply from every side, so as to reach all autumnal buds, for it is about them the blister mite is most abundant.

THINNING FRUITS.

THE past season has demonstrated more clearly than ever the necessity of producing a better grade of fruit than can be grown by the "let alone" method so long practiced by most of our growers. The results of thinning out a liberal amount of fruit from an overloaded tree or plant are (1) that the foliage becomes more vigorous and more resistant to insect and fungous pests; (2) the remaining fruit grows larger and more perfect in size, color and quality; (3) the larvæ of the codling moth, the insect producing wormy fruit in the apple, pear and quince and the larvæ of the plum curculio that produces the wormy plums and cherries, are destroyed in the immature fruit when it dries up or decays on the ground, and much less labor is required to sort and pack the remaining fruit when it is harvested. The price obtained for fruit from carefully thinned trees or plants is certain to be much higher than if all the fruit were allowed to remain unthinned, while the cost of thinning is not much greater than would be the extra cost of the final picking and sorting of so much inferior fruit.

The best time for thinning fruits is as soon as it can be determined what specimens are injured by insects or by any other cause. The best time for the apple, pear, peach and plum is early in July. The grape should be thinned as soon as the size of the bunches can be determined, which may be the last of June or the first of July. The amount of fruit to be removed will depend largely upon how much has set. In some cases three-fourths should be removed. In the case of peaches and plums the fruit should not mature on the branches nearer than six inches apart if the whole tree is fruiting. With apples and pears the amount of thinning to be done must depend upon the size and vigor of the trees, but all wormy and deformed fruits should be removed even to the extent of taking the entire crop, for in the majority of cases such fruit only serves to increase the number of insects the next year and will not pay the cost of harvesting if allowed to mature. In thinning the grape all small bunches should be removed if the fruit is intended for market, as only large, full bunches will sell for good prices, and only a limited amount, depending upon the strength of vine, should be allowed to remain on each cane. In vineyards at full growth from 10 to 20 pounds of fruit will be all that each vine can mature and retain its vigor.—*Massachusetts Experiment Station Report.*

MARKETING CHERRIES.

THIS is an old topic, but will be of interest, notwithstanding. I see nearly every day, in fruit time, examples of loss and waste, in putting fruit upon the market in an unripe or unmerchantable condition. Only the other day I saw in a grocery some cherries in a drawer in front of a grocery, which had been picked as much as six days sooner than they should have been.

They were not only small and green but very imperfect. There were stems without cherries and cherries without stems, and all together about as uninviting a lot as I ever saw.

The next day I brought some to market, which I had picked myself carefully with the stems, putting in no specimens which contained defects visible on the outside.

Without telling the grocer that I had any, I asked him if I could sell him some. "Why, no," he said; "we have cherries and they go very slowly." I got him to look at the few baskets I had and he asked me my price and took them and ordered some more for the following day. He paid me a higher price at wholesale than he asked for the others at retail, so that it is altogether possible that the party furnishing the others did not receive more than half or two-thirds what I did.

The cherries being picked green were not more than half size, so the picker had to pick double the number for the same measure, losing the growth as well as the beauty of the matured fruit, which is the most salable quality fruit possesses.

It is worse than useless to take to market a single specimen of anything which is too poor to be consumed.

There is a loss in marketing immature fruit. There is a loss in size and increase in labor and a final loss of price. Cherries require the most careful handling of any fruit sold, and I find it is profitable to hire it picked by mature hands of good judgment. They will more than save their wages in the discrimination they use in gathering the fruit.

In gathering large cherries with the stems six or eight quarts per hour can easily be gathered. I find that they are best marketed in the quart berry boxes; this saves rehandling and much mussing of the fruit. —*L. B. Pierce in Green's Fruit Grower.*

THE ACIDS OF FRUITS.

THE grateful acid of the rhubarb leaf arises from the malic acid and binoxalate of potash which it contains; the acidity of the lemon, orange, and other species of the genus *Citrus* is caused by the abundance of citric acid which their juice contains; that of the cherry, plum, apple and pear, from the malic acid in their pulp; that of gooseberries and currants, black, red and white, from a mixture of malic and citric acids; that of the grape, from a mixture of malic and tartaric acids; that of the mango, from citric acid and a very fugitive essential oil; that of the tamarind, from a mixture of citric, malic and tartaric acids; the flavor of asparagus from aspartic acid, found also in the root of the marsh mallow; and that of the cucumber, from a peculiar poisonous ingredient called fungin, which is found in all fungi, and is the cause of the cucumber being offensive to some stomachs. It will be observed that rhubarb is the only fruit which contains binoxalate of potash in connection with an acid. It is this ingredient which renders this fruit so wholesome at the early commencement of the summer, and this is one of the wise provisions of nature for supplying a blood purifier at a time when it is likely to be most needed. Beetroot owes its nutritious quality to about nine per cent. of sugar which it contains, and its flavor to a peculiar substance containing nitrogen mixed with pectic acid. The carrot owes its fattening powers also to sugar, and its flavor to a peculiar fatty oil; the horse radish derives its flavor and blistering power from a volatile acrid oil. The Jerusalem artichoke contains fourteen and a half per cent. of sugar and three per cent of inulin (a variety of starch), besides gum and a peculiar substance to which its flavor is owing. —*Chemistry of the World.*

NOTES FROM THE FRUIT EXPERIMENT STATIONS.

THE following reports from the various Fruit Experiment Stations give a good general idea of the outlook for fruit throughout the province:

FROM WENTWORTH.

In reply to your enquiry with regard to fruit prospects, I may say everything looks very promising. In fact, there is entirely too much fruit set. Unless nature does some thinning a great many orchards will be overloaded. The fruit and foliage never looked healthier than at present, not the first appearance of fungus on either fruit or leaf, not even on Flemish Beauty pears, and very little trouble from insects, except curculio, which has been pretty bad on plums, but nearly all varieties need thinning. If we get rain for the berries from the present indications there will be a great abundance of everything in the way of fruit.

Winona. M. PETTIT.

FROM BRUCE.

The prospects for fruit in this district are only fair; we have had some very hard frost. Apples promise very good so far, and trees are healthy and free of scab. Pears promise fair, and plums very good crop, but they were damaged some by a very heavy wind, rain and hail storm on May the 28th. Cherries will be a light crop, as are also red and black currants. Raspberries promise to be fair, and strawberries a good crop.

Walkerton. A. E. SHERRINGTON.

FROM SOUTH SIMCOE.

Apples have set a large crop of fruit. Pears bloomed sparingly with me, and there will be a light crop of fruit. Japan plums will also be scarce; indeed, all varieties failed to bloom. Common sour cherries have set a nice crop; my Dyehouse are nil. Strawberries promise a large crop now that the late cool spell is over. We had a light frost one or two nights last week, but I cannot see that any harm has been done.

The late dry spell, just at planting time, which here was a little later than usual, owing to the plants having made little or no growth till after the 24th, has been hard on the spring set plants; indeed, there will be a shortage in next year's supply, as many of the plants have died.

The native varieties of gooseberries, such as Pearl and Josselyn, have set a nice crop, but the foreign varieties, owing evidently to the scourging they got with the mildew last season, have not only failed to bear, but nearly every bush is dead or partly so. Columbia and Whitesmith have stood the winter the best.

Shaffer raspberry winter killed badly, while Columbia came through the winter sound to the tips.

Nantyr. S. SPILLETT.

FROM ONTARIO COUNTY.

The present prospect for fruit of all kinds was never better in this section. The fine sunny weather at blooming time had a very beneficial effect in aiding the fruit to set well and many varieties both of apples and pears will require thinning severely to get large samples. Almost every tree planted in 1896 and 1897 will have fruit on this season, and the fruit is fully one week in advance of former years. This is the eighth year our Spies have loaded in succession, although

many fruit growers will insist that the Spy is only a biennial bearer. The fine weather is also developing the insect pests, and unless spraying is attended to vigorously a large percentage of the fruit will be unfit to sell. There is more attention being paid to the orchards in this district this season than for many years previous, as orchardists are beginning to realize that unless their fruit is A1 buyers and shippers will pass them by.

We had our first ripe strawberries on the 29th ult., two weeks earlier than last year. Small fruits, with the exception of grapes, are looking splendid, and promise a good yield if weather is favorable.

Whitby. R. L. HUGGARD.

FROM SIMCOE.

With regard to the fruit crop. We have had a fine rain lately, but too late to save the strawberry crop from serious injury by the previous long spell of drouth. The crop is below average in quantity and quality. Raspberries will likely be a medium crop if showery weather continues. Blackberries are in fine shape and promise a very large crop. Plums, medium, some trees heavily loaded, many entirely barren. Cherries and pears are light; cherries not half a crop. These were no doubt injured by the heavy frosts in May, just when the blossom buds were bursting, as there was a heavy bloom, but it failed to set fruit. Early apples will not be more than half the crop of last year. But winter apples so far promise an excellent yield, about average, and the quality will likely be good.

Craighurst. G. C. CASTON.

FROM ST. CATHARINES.

W. H. Bunting, in a report on the fruit situation to the Sun, says: "The prospects at present, barring a heavy dropping of the tree fruits owing to the continued dry weather, are very promising for a large and abundant crop of all kinds of our more important fruits, with the exception of apples, which, owing to the unusual crop of 1902, will be of only moderate quantity this season, some varieties and some localities showing good average, while others are comparatively light, and in some cases none whatever. We are now experiencing a great lack of moisture, and while in some localities there have been a few showers and heavy rains of short duration, which have relieved the situation to some extent from many portions of the province reports are coming in of scarcely any rain since the first of April. This fact, coupled with the heavy frost early in May, which did considerable damage in the eastern part of the province, points to a marked scarcity in the smaller fruits, such as strawberries, raspberries, etc.

"In this (St. Catharines) section strawberries are ripening about ten days earlier than usual, and the season will likely be of short duration. Cherries and plums are well set, and as a great deal of spraying has been, and is still being, done, no doubt these crops will be of satisfactory quality.

"Peaches promise a full crop, with the exception of Early Crawfords, which were cut down by the May frost, and the Elberta, which has suffered severely from the curl leaf, and will no doubt drop their crop. I have as yet heard of no successful remedy for this difficulty, although the Bordeaux mixture and the lime, sulphur, and salt mixtures has in some cases lessened the effects of this disease.

'Pears have not set heavily, with the exception of the Kieffer, and one or two other varieties, which have promise of full crop.

"The vineyards generally are looking well, and give promise of a heavy crop of fruit this year. A word of warning to our vineyardists will, however, be in order. During the past two or three years the dis-

ease called 'black rot,' which has done so much damage in Ohio, and in portions of New York State, as well as in the western part of our own Province, has gained a strong foothold in the Niagara district, where by far the larger portion of the grapes consumed in Canada are produced. This disease has affected primarily the Rogers variety, but has also made, during the past two years, severe inroads upon the vineyards of Niagara grapes, and in some instances has taken hold of the Concord as well. Thorough and frequent applications of the Bordeaux mixture have been shown to be a specific for this disease, and it would seem a matter of prudence for all owners of vineyards to be on the alert and check this disease before it shall have spread over the entire district and have destroyed what is fast coming to be the most important fruit product of the section referred to.

"Taking it all in all, the coming fruit season promises to be a busy one for the average fruit grower. With the great scarcity of competent help, and consequently much higher wages to be paid, and a general increase in the cost of handling the crop, unless a good distribution of the crop be made and fair prices realized throughout the season, it may be that many of our growers may not consider an abundant crop of fruit an unmixed blessing. A full crop, however, will no doubt result in putting an abundance of the gifts of the Great Creator into the hands of the thousands of our cities and towns who in years of scarcity cannot afford to enjoy them. It only remains for our express and transportaiton companies to awake to the situation and provide such facilities, both as to moderate rates and prompt service, as shall supplement the efforts of the vast body of earnest fruit growers of our Province, and the close of the season will see all concerned—producer, handler, and consumer alike—well satisfied with the result of the season's operations."

ORCHARD MEETINGS IN NEW BRUNSWICK.

UNDER direction of the Department of Agriculture for the Dominion, a series of twelve orchard meetings was held in New Brunswick this spring.

They were addressed by Mr. Alex. McNeil and Mr. G. H. Vroom, Dominion Fruit Inspectors, who gave practical demonstrations in pruning, grafting, spraying, and "orchard repairs" generally.

Not a little of the success of these meetings was due to the efforts of Mr. Thos. A. Peters, Deputy Commsisioner of Agriculture for New Brunswick, and Mr. W. W. Hubbard, representing the agricultural interests of the Canadian Pacific Railway.

The following notes are from Mr. McNeil's report to the Chief of the fruit division:

Our meetings covered the St. John Valley from Andover South, as well as the points between St. John, Hillsboro, and Shediac. This wide range of country may be conveniently divided into two districts, the one lying north of Woodstock and the other south. The northern division is growing the hardier varieties of apples, and in certain favored spots the Ben Davis and some of the winter varieties succeed. The southern district is growing all the commercial varieties, but the Duchess (New Brunswicker) is the commonest variety, and in many places is grown to the exclusion of all others.

The quantity of early apples is about sufficient for home consumption, and it is doubtful whether large plantations of such varieties as Duchess, Red Astrachan, or even such good fall varieties as the Gravenstein and Yellow Bellflower should be made. The European market at present is the only one that can be said to be unlimited, hence only such varieties as will carry successfully can be recommended for large plantations of commercial fruit. In the northern districts there is still room for experiments in the matter of winter varieties. Although many of these have been planted, the results as reported by the growers are somewhat conflicting. The care, however, given to orchards varies so much that it renders any conclusion impossible. It is therefore highly desirable that experimental orchards, not necessarily large, should be planted in different sections of the country, under conditions as uniform as possible. Such orchards would not only be an example of the best methods in orcharding, but would give reliable data with reference to varieties. Although I am not in a position to speak absolutely upon the subject, I am of the opinion that the varieties most in demand in the European markets can be grown in this district, though it would be no doubt better to top-graft on some such stock as McMahon's White or Tallman Sweet. It may be taken for granted that with ordinary precautions all the commercial varieties can be grown in the southern district.

The orchardists of New Brunswick are making one or two serious mistakes in orchard practice. In most of the orchards the trees are planted from 12 to 16 feet apart. This is altogether too close; much better results could be obtained even with the Duchess, a small growing tree, if it were planted 25 to 30 feet apart. Large growing varieties, such as the Rhode Island Greening and Northern Spy, should not be planted closer than 35 or 40 feet apart. The saving in close planting is only in the rent of the land; there is a serious loss in the difficulties of performing all orchard operations. The rent on the land occupied by a tree, even at the greatest distance, should not be more than ten cents per tree, a sum that is soon gained by the ease with which spraying, pruning and gathering of the fruit may be done.

This close planting practically leads to letting the orchard run to sod, and to this fact I feel sure we can attribute much of the want of success that has been reported in individual cases. I take it for granted in recommending orchards in any place, that clean culture is to be the rule. We visited, in Fredericton, the orchard of Mr. Gillman, where we saw a splendid example of comparatively wide planting and clean culture. The vigor of his trees was so much greater than that of the orchards in the neighborhood, grown in sod, that all who have carefully studied the conditions must agree that clean culture must be the general rule for orchards. In nearly every orchard visited we found the trees badly infested with oyster-shell bark-louse, and Sun-scald was quite prevalent. For the former it was recommended that when the trees were dormant they should be sprayed with a lime whitewash made just as it would be made to use with a brush, strained carefully and applied with a spray pump. In addition, spray carefully with a kerosene emulsion when the bark lice are moving in June. For sun-scald it was pointed out that if the tree were leaned a little toward the southwest, so that the limbs would shade the trunk, and if the pruning were not too severe, this injury might be prevented. There appears to be some difficulty in getting suitable nursery stock, though it is likely that the Department of Agriculture, working through the Agricultural Societies, will make an improvement in this matter.

The necessity for thoroughly under drain-

ing orchards is not appreciated as it should be. Much of the land, especially along the banks of the St. John river, appears to be admirable in situation and soil for orcharding, but much of it requires very careful under draining before succsssful orchards can be obtained. There are so many springy places, even on high land, that uniformity in the orchard cannot be hoped for except by under draining.

The prospects for orcharding in New Brunswick appear to me to be good. There is, however, a lot of educational work to be done. There is scarcely a farm upon which there is not at least five acres suitable for orchard purposes. Presuming that fifty trees were put upon an acre we should have 250 trees in each orchard of five acres. It would not be too much to say that at the age of eight years, when these trees are coming into bearing, each tree would be at least worth $10.00, so that practically the value of the farm could be doubled in eight years by placing an orchard upon it. This orchard would furnish remunerative employment for a large number of people, and thus prove itself a benefit to every other industry in the country.

PREPARING PLUMS FOR MARKET.

IN most cases experience has proven that plums, if shipped to market in ten-pound grape baskets, provided with handles, and put up in neat, presentable shape, will bring the producer a greater per cent. of profit than if shipped in half-bushel, or bushel crates, or packages. A careful picker can fill the basket direct from the tree; but the usual plan is to pick into large receptacles, then, carefully sorting the plums, to place them in packages ready for the market. This frequent handling removes a great deal of the bloom from the fruit, which removal should be avoided as much as possible. By the use of a single table, similar to the one shown in the engraving, from the American Agriculturist, plums and other similar fruits are easily sorted. The top of the table should not be over three feet long and two and one-half feet wide. The sides and back, r, r, r, may be eight inches wide at the back, tapering to three inches in front; the front guards, c, c, should be less than three inches high, leaving a six-inch space between the inner ends; the slanting board, g, is six inches wide. To operate it, place the fruit carefully upon the table, the sorter occupying a chair in front of the table, with a basket on his lap. Both hands can then be used in removing the leaves, limbs, damaged or imperfect fruit, throwing the refuse into baskets; m, m, located upon the floor, at a convenient point upon each side. The perfect fruit or that intended for shipping, is rolled in front, and passes over the incline, g, into the basket. This table need cost but little, and may be made in as crude or elaborate a form as wished. In working, the elbows can rest upon the guards, c, c, which will make the operation much easier. An ordinary table can be fitted with these simple appliances, and quickly removed after the shipping season is passed.

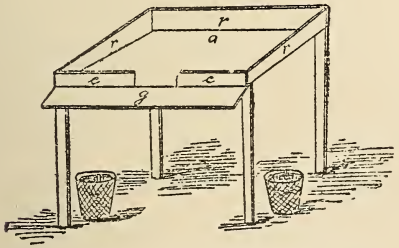

FIG 2603. FRUIT SORTING TABLE.

EUROPEAN FORESTRY

BY

MARCEL HOEHN,

BERLIN.

FORESTRY is a subject so comparatively new in Ontario, and yet of so great importance to our people that anything we can learn from those who have had experienec should be welcomed. The following interesting article is contributed by one of our correspondents, who has had long experience in forestry in Germany:

The question is often asked, Why is it that in Germany and France forestry has been successfully practised by the govcrnment for a century and a half, and we are only now thinking of teaching coming generations how best to conserve our forests? By long years of education and practical experiment, forestry has become an art in those two European countries. There, as a rule, they look ahead. They reforest their woodland and do not deforest it. It is managed as carefully as a gold dollar. Everything is eked out and boiled down systematically before they enter the woods. The forests are cropped when they are ripe as regularly and methodically as a farm crop. They have no open season methods, for one crop is followed by another crop in regular rotation. They have no denuded woodland, for one crop is immediately followed by another, and the last is always better than the one preceding.

When the original forests are cropped in order to start a new or young plantation, every tree is removed. Nothing is spared except a few nurse trees, and each one has to pass inspection, for it would be poor policy to leave one which is partly diseased or crooked. The ground is never in better condition to grow young seedlings than just after the removal of the original forests. Nature has provided the forest floor, with millions of seeds of all kinds, and they are only waiting for sunlight and air. Under a thick shaded canopy they will not germinate readily. Young forest seedlings under this systematic treatment must come up together properly and crowded thickly. They must touch each other, and the more struggling and fighting that goes on amongst the plants the better. Otherwise there would be a failure, as the forest plants must pass through a regular series of transformations all together in order that they should develop in a uniform manner and produce regular stems, and it is in this camp or school that such transformation must take place before the plants are thinned. There are only two stages of growth in a young forest; the nurses and the young seedling.

Under this system it is surprising how rapid the growth is. In five or six years the young seedlings are ready to be thinned, and in fifteen or twenty years you will have a forest of which you may be proud, for it will be a delight to look at. We cannot view the art of forestry as practised in Germany or France to-day without feeling the deepest respect and admiration for it. It is a credit to skill and long and patient experiment, resulting in improved methods. As all the trees are of one age, they are of the same height and thickness, all straight, smooth, sound, and without limbs on the trunks. In a systematic forest there will never be any over ripe trees, for as they are all of one age they will all ripen together and be cropped together.

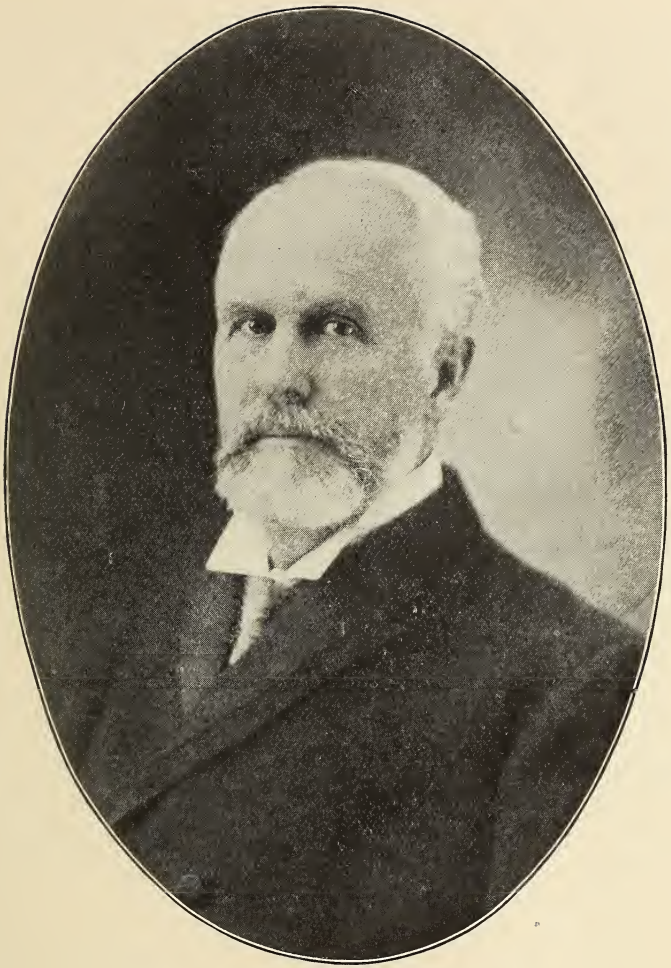

Fig. 2604. James Mills, M. A. LL. D.

JAMES MILLS, M. A. LL. D.

"God might have made a better man than an Irishman, but he never did."—*Anon.*

DR. JAMES MILLS was born of North of Ireland parents, in the County of Simcoe, Ontario, in the year 1840. There, until he reached twenty-one years of age, he received a most thorough training in all the practical details of Canadian farm work, as the farm upon which he was brought up, and upon which he worked, was one of the best managed and best cultivated in the province. So far his life had been intensely practical. A serious accident formed the turning point in his career. At twenty-one he lost his right arm in a threshing machine, and, thus handicapped, he stood upon the threshold of his life work with responsibility, and what some might call disaster, staring him in the face. He then entered the public school and began his education at the time when the majority of young men have already finished. Hitherto his training had been manual or physical; now he began to

develop the mental side of his nature. From the public school to Brantford Grammar school, and thense to Victoria College, Cobourg, he was led in his studies. From Victoria College he graduated as Bachelor of Arts in 1868, taking the gold medal for the year for the highest rank in general proficiency. Thus closed the second period of his life, and the seven years of study and preliminary training. After graduation he taught for a while in the Cobourg Collegiate Institute, from which position he was promoted to the headmastership of the Brantford High School. This institution was then in rank a third or fourth rate school; under Mr. Mills it soon became a Collegiate Institute, and began to attract attention as one of the most successful for training young men and young women for general work, for teachers, and for university examinations. The growth of this school and its reputation for thoroughness and good discipline suggested a man for the Agricultural College when the presidency became vacant. The offer came to Mr. Mills from the Government entirely unsolicited, and was accepted in the summer of 1879, when began the fourth period of his life, the work in which he is still engaged. The Ontario Agricultural College had been established in 1874, and for many years had many and great difficulties to contend with. We sometimes hear a great deal about the agricultural colleges of the United States, but they have been forced, in order to maintain an existence, to enlarge the scope of their work by including technical, teachers, and even commercial courses. In many of these colleges the agricultural course has been the least successful. The attempt, therefore, to maintain an Agricultural College on its own merits in this province has presented peculiar difficulties, and the success achieved is much to the credit of the various officials who have from time to time guided its course. When Mr. Mills became president the college was still working up hill, fighting its way with little encouragement, and with much opposition. For the past twenty-four years he has devoted his unstinted energies to the work. The college is a large institution, and has presented extraordinary problems to solve. It has had a hard struggle to gain the recognition and approval of the very class for which it was established. It has all the perplexities attendant upon a large boarding school. It has had to overcome the prejudice aroused by having had, in its earlier days, a number of students who were not agricultural in their bringing up or in their inclination. The students are now coming from the best farms in the province, and the institution is becoming more and more every year an Agricultural College for Ontario.

The work of the college has been greatly enlarged during President Mills' regime by the addition of third and fourth year courses, and affiliation with Toronto University, whereby the degree of Bachelor of Science in Agriculture is conferred upon its students.

The high esteem in which President Mills is held by the farmers of Ontario, and the very high regard in which he is held by the leading agriculturalists of the United States prove that his work has been successful. Personally, President Mills has the best wishes of all; he is known as a man of energy and thoroughness. He has shown the greatest courtesy to the many thousand farmers with whom his work brings him in contact at Guelph and elsewhere; he has kept himself free from party politics, and is as acceptable to Conservatives as to Reformers. His administration of affairs is clear and above reproach. He has never been known to seek praise or publicity, to sound his own praises, or encourage others

to sound them for him, to gain any notoriety by pulling or tickling the ear of the public. He has simply done his duty, and that not always a pleasant or a popular one, and has allowed himself to be judged by the public on the merits of the work done. His work speaks for him, and the agriculturists and others of this province know that the Ontario Agricultural College embodies the life work of President Mills and the many energetic workers by whom he has surrounded himself during the past twenty-four years. Since Dr. Mills has been given full control of the College things have become settled into systematic methods, and one can see evident marks of progress in every department. Since the college opened last September more than seven hundred students have been enrolled.

FLORICULTURE FOR WOMEN.

RAISING flowers in greenhouses for market is a profession for which women are proving themselves especially adapted. It is a business that has to be learned like any other, but with a little experience added to natural qualifications, such as perseverance, energy and common sense, one is sure to succeed. The plant I own and am running at the present time was started on $250, and I have built up a large, well-paying business. Given an acre of land, the first requisite, of course, is a greenhouse. A modest one can be built for $100 and a rough heating apparatus put in for $50. The cost of plants and seeds is slight, and other expenses, such as tools, fertilizers, cold frames for starting the plants, etc., would amount to little on so small a scale. The secret of success is to utilize every inch of space. In a vegetable house the tables can be filled with lettuce, cucumbers or tomatoes, while rhubarb and mushrooms can be grown on the ground underneath. A good head for planning is a necessity, and no time must be wasted between crops.

The best location for such a venture as this is a small town or community of prosperous people. In a prosperous community you do not have to market flowers; customers will come to you for them. I sell all my flowers at my greenhouses. The profit is in decorating and set pieces rather than in cut flowers. A great advantage in this profession is that there is so much room in it for originality and taste. A branch in which a great deal of money can be made is in the sale of plants. All kinds of bedding plants are wanted in May and June for lawns, parks, cemeteries, cottages at the seashore, vases and wayside nooks. Pots filled with two or three California violet plants in bloom brought seventy-five cents in this city last winter. Pansies are in demand in their season. Ferns, palms and orchids grace your dining rooms, churches, etc. The filling of window boxes, designing new effects in jardinieres and hanging baskets is a line in which a woman can be very successful. The rose in all its colors is one of the most profitable flowers to grow under glass. The demand is great and people must have them. —*M. E. Cutler before Massachusetts Horticultural Society.*

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

SUGGESTED LINES OF WORK.

BY

MISS JESSIE M. GOOD, SPRINGFIELD, OHIO.

USUALLY the first question arising in a new association is that of adequate funds to cover the work desired to be accomplished. This difficulty is met in several ways. First, of course, by membership dues. Then by subscription or donation. Third, by some form of entertainment. There is a wider latitude in entertainments for civic than for church work. One association I know of netted more than three hundred dollars by giving a steamboat excursion. We cannot all live by river or lake, but every town has some favorite resort. Musicales, theatricals, lawn fetes, picnics, are all popular.

FIG. 2605. SHRUBBERY SCREENING HIGH BOARD FENCE.

Many places have found it to their advantage to have depositories in prominent stores, banks, etc., for the accommodation of those who favor the organization but have not time to attend meetings or assume the duties of committee work. Strangers, charmed by the town's beauty and cleanliness, often put money in these depositories, which should be neat and plainly labeled with a brief statement of the objects of the association. There is a growing tendency among old established improvement associations to send out collectors. These collectors may be paid by the day or with a percentage of their collections. There are also art associations which loan or rent pictures for exhibitions. An art loan, if properly advertised in the towns around you, with excursions from certain points on each day, ought to pay well if properly managed. A flower show, to which an entrance fee is charged, is an appropriate means of raising funds for civic improvement. A rose show is the thing for June, a chrysanthemum

show for autumn. Preparation for the latter must be made in spring, and will be found an excellent thing to keep alive the interest of your association. I would have plants and cut flowers of other varieties for sale, but roses and chrysanthemums must be the main feature. The sale of plants and cut flowers never fails to bring the treasury a handsome sum.

As to the application of money, you will as usual find you never have money enough for the work you desire to do. I advise new societies to concentrate the little they have in putting in order the most unsightly and offensive place or places in town—alleys, sidewalks, gutters, the railway station, the public square, the church or school yards, or the cemetery grounds. Whatever it may be, put it in order and keep it so.

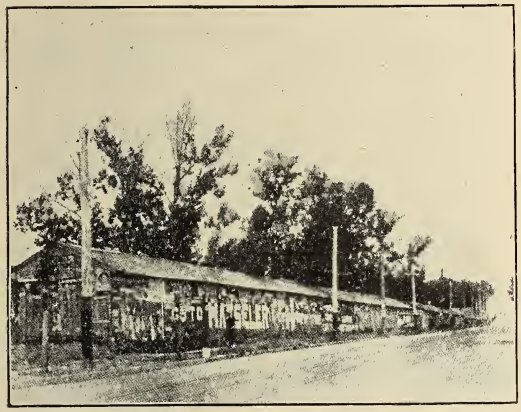

FIG. 2606. THE ROAD PASSING THE FAIR GROUNDS BEFORE IT WAS IMPROVED.

Make it so clean or so pretty that it is noticeable.

Do whatever most needs doing, and do it so systematically and thoroughly that no adverse criticism can be made; do it tactfully, make no enemies. Let the city officials know that you intend to work in harmony with them and to support them in all their efforts for the public welfare. As the secretary of one association wrote me, "we do the things that are outside the province of an alderman's duties, while, by arousing public opinion and a general civic pride, we really make it easier for them (the city officials) to make laws tending to the town's improvement."

There has been much curiosity regarding the management of the prizes offered by improvement associations. One association, after some experience in this work, has divided its city into four districts, through he middle each way as nearly even as possible, and to each district offers the following prizes: Ten dollars for the best lawn (this includes front and back yards, shrubbery, flowers, and general neatness of alleys and gutters). Five dollars for the second best premises. Ten dollars for the best kept school yard. Five dollars for the second best (money to go to the janitors, or whoever does the work. Ten dollars for the best kept lawn about a public building other than a school house. Five for second best. This last prize will include the postoffice, library, court house, church yards, etc. Three dollars for the best window or porch box. Two dollars for second best. Five dollars for the best grown vines that cover fences, porches, or windows. These vines to be the tender annuals, not the hardy vines that require but little care from year to year. Ten dollars to the neatest and most improved premises (front and back) along any railroad within the city limits. Five dollars to the second best. The improvement to be judged by comparison with the condition of the property the previous year.

A special prize of ten dollars is offered for the best kept premises of a man or woman living in rented property, and whose income does not exceed twelve hundred dollars a year. I should have stated earlier, perhaps, that all these prizes were limited to applicants whose incomes do not exceed the above sum. The aim is to arouse interest

in beautiful surroundings among people whose income obliges them to take care of their own lawns. This prize gave possibly the most satisfactory results of any offered the previous year. A member and interested friend of the association has offered eight prizes of five dollars each to go to a boy and girl in each of the four quarters of the city as divided by the association, who can show the best flower bed planted and cared for by himself or herself. The boy or girl must not be over sixteen years of age.

The offer of these prizes was published several times in each of the city papers. Neat circulars were printed and distributed to the pupils of the various schools until the offers were thoroughly understood. All applicants must file the notification of their entrance in the contest by the 15th of June, and as soon after as possible the awarding committee will visit the premises of all contestants and examine them from gutter to alley. Another visit is paid in August and another in September, after which the committee announces the winners. No one knows the days the committee chooses for its visits, and the prizes are awarded strictly on the merits of the premises as found.

FIG. 2607. THE SAME ROAD AFTER BEING IMPROVED BY THE LOCAL SOCIETY.

PARKS AND GARDENS

BY THE EDITOR.

IT is a remarkable fact that only of recent years have public parks become numerous, for previously parks and gardens were exclusively private property, and none but the wealthy could have the full benefit of such luxury.

Nowadays a great change is coming over the nations, and even the governing bodies of our towns and cities are coming more and more to appreciate the great value of such breathing spaces for the health of all classes, as well as for their enjoyment and recreation.

Perhaps the highest ideals of park beauty are to be seen in Great Britain, where the magnificent parks connected with private estates have cultivated public taste in that direction and led to a universal demand upon governing bodies to provide similar privileges for the people at large. So rapidly has this spirit developed in that country that already there are more than one thousand public parks and pleasure grounds in the British islands, of which two hundred are in London and fifteen in Glasgow. The total area of the parks of London is about 19,000 acres, and that of Glasgow 1,000.

Nor is the United States laging at all behind; for since Boston and Chicago have taken the lead in establishing magnificent park systems, the whole country seems alive with enthusiasm, and even our own Canada is waking up to her wonderful possibilities along this line.

SCHOOL GARDENS

BY

PROF. W. LOCHHEAD, O. A. C., GUELPH.

SIGNS are not wanting that school gardens will play a more prominent part in the education of the child in the near future than they have done in the past. In Europe the influence of school gardens has been felt for many years, and most of the governments of northern Europe have provided liberally for their maintenance. In Austria the school garden is maintained for the specific purpose of improving the general education and instruction of the scholar. There it is "a large outdoor slate on the soil to put living things on to be rubbed out." In Sweden it aims to give an industrial training along with a general education, and it has done much to promote agriculture. In Prussia the school garden plays an important part in the industrial training of the child, and has very materially advanced the fruit-growing industry of that country. In France and Belgium, school gardens have done much to promote the growth of flowers, vegetables, and fruit.

Some educationists believe that the Austrian ideal is the best, as it does not attempt to give an industrial training along with the primary education. Whatever may be our views regarding this matter, this much is clear that the main purpose of the school garden should be to improve the instruction given in the school. It should be incorpo-

FIG. 2608. BROADVIEW BOYS' GARDEN, TORONTO

rated into the organization of the school. As one writer states, "Every subject of the time-table should be modified by garden work, and the instruction in almost all of these should be improved by being more real and vivid and more stimulating through manual labor." Many persons will ask: "Of what value are school gardens?" In answer to this question, the value may be stated concisely as follows: (a) It inculcates habits of order, care, neatness and method, and forces the child into a habit of constant observation; (b) it brings the mind into closer communion with nature; (c) teacher and scholar are brought into closer touch; (d) physical recreation of a helpful, pleasurable nature is provided; (e) it provides a hobby that may keep many from less desirable occupations during their leisure time; (f) a greater interest is taken in garden work in the community; (g) indirectly, a love for home and its environments is created; (h) it gives boys and girls the rudiments of an industrial training which may be of value in later life.

From the instructional point of view school gardens are valuable on account of the large number of special studies which may be carried on by the children in connection with them. Some of these special studies are: (a) the broad distinction between soils—the different kinds, and their differences as far as can be made out without too elaborate experiments; (b) the germination of a large number of seeds, and the way the different seedlings get out of their seed coats; (c) the development of the different flowers, the formation of the fruit and seed of the garden plants; (d) studies of insects, birds, and fungus diseases which are common in every garden; (e) the record of weather conditions which influence the growth of plants, and the use of such instruments as the barometer and thermometer; (f) improvement of the soil by spade work, manuring and draining; (g) how plants are

Fig 2609. School Gardens at Hartford.

constructed and nourished, and the conditions for their healthy growth; (h) the selection of seed in the production of better varieties.

School gardens may also be of great service in the teaching of arithmetic and geometry in a rational manner. For example, such topics as the following come up at every turn: (a) the number of plants required to fill a given space; (b) the garden account, supposing that the seed and mature plant have their value, and that a boy's time is worth something; (c) the comparative cost of two plots treated differently; (b) the calculation of the percentage of sound seeds in a given sample in a germination test; (e) the calculation of losses by insects, and the gains by beneficial birds, frogs, and insects; (f) the laying out of the plots in various forms will bring home to every pupil the

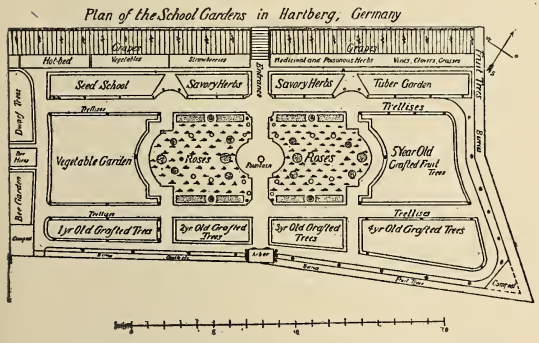

FIG 2610. SCHOOL GARDENS IN HARTBERG, GERMANY.

meaning of straight lines, curved lines, circles, triangles and squares; (g) the construction of these plots to scale; (h) the estimation of the slope of the garden, etc.

In the solution of many of the problems which have been indicated, drawing will come in as essential, especially in the making of diagrams to illustrate important facts in the structure of plants and insects, and in the delineation of beautiful flowers and leaves.

It is wonderful how many questions will be asked by the pupils during the progress of their garden work which will often stagger the best teacher. Such familiar phenomena as the growth of stems upwards, the roots downwards, and the branches horizontally, will be brought forcibly to the minds of the pupils who will undoubtedly ask for an explanation. What happens when water is poured on dry dusty soil? How does water rise from the saucer to the soil in the pot? How many plants shut up before rain? Why is there no dew under the shade of trees? Why do not the leaves of cabbage become wet with rain? Questions such as these will occur to the mind of the average child who is interested in garden work.

During a recent trip to New England the writer paid a visit to the School of Horticulture at Hartford. This school is under the charge of Prof. Hemenway, and it situated in the country about a mile from the end of the street car line. Arrangements are made with the schools of the city of Hartford whereby the children may take garden work after 4 o'clock and on Saturdays. The experience of the last three years reveals the fact that the children are seldom absent, and that the "street loafers" have become quite industrious boys. It seems to the writer that such could be done in Ontario by the introduction of school gardens such as those at Hartford.

The experience of the Director of the Broadview Boys' Institute in Toronto shows clearly that garden making and garden keeping may be made a potent factor in the education of the boys during their leisure hours. When boys prefer tending their garden plots to witnessing a football match in an adjoining field, it is surely time for the authorities to take action and provide garden grounds where all who will may have plots.

In every town there is usually one or more persons of leisure who could conduct school

garden work along the line of that in Hartford. Not every man who can keep a garden will make a good leader and instructor of boys and girls. That man must be a person whom the boys will respect and obey, for there will of necessity be considerable drudgery work, which the average boy detests, and did not take into consideration when he took up garden work. That man, moreover, must be systematic in his own work and bring about an orderly system of the work in his charge. He must be able to give short talks to the boys both in and out of doors, concise and to the point.

Grounds suitable for work of this kind must be provided at a convenient distance from the homes of the boys. In a matter of this kind there would in most cases be little trouble in finding an area large enough for 50 or 100 small plots each 10 feet by 25 feet.

Then tools must also be provided, but fortunately these are not costly. Each boy should have a set, composed of a garden rake, a garden hoe, a hand weeder, and a line, for which he would be held accountable. A few digging forks and spades should also be at the disposal of the class.

In Hartford the school assembled in a small room, fitted up as a class room, at an appointed hour, received their note books, and copied instructions dictated by the master in charge regarding their day's work. The attendance was recorded by the pupil himself in a special page of his note book. As soon as the early plants began to mature the boys were allowed to take home material from their own pots, but they were required to note in their books the amount of stuff taken.

These gardens were conducted through the entire season, holidays and all. Whenever a boy failed to do his work properly, or refused to obey orders, his plot was given to another boy, for there were always more boys in Hartford willing to do garden work than there were plots.

In early spring, before the plots could be worked, instruction was given in the greenhouse or plant-house in mixing and sifting soils for potting plants, in planting seed, in potting and repotting plants, and in pricking lettuce and tomato plants.

The rules, which are printed on the inside cover of their note books, are: Each pupil is required to

1. Be regular and punctual in attendance.
2. Keep his garden orderly.
3. Keep his record book correctly.
4. Leave his tools cleaned and hung up before going home.
5. Be courteous to all, and if absent or late furnish excuse from parent or teacher.

It occurs to the writer that now is an opportune time for our Horticultural friends to forward a movement which is undoubtedly a most important one. If the school board will not act immediately it remains for the friends of the movement to take hold of the work themselves and give instruction. Very likely a little money will be required, but this will be forthcoming as soon as the object is placed clearly before the public. There is no more civilizing influence anywhere than that of school gardens, and history tells us that one of the greatest advances in the history of the race occurred when men began the cultivation of plants. He then became a home builder, and gave up his wandering, nomadic habits. One writer of the present day believes that the "tramp" is the product of the tendency cityward, which is so strong in the present age, and is a "reversion" to the primitive habits of our ancestors. The children are crying out for gardens; the home demands a garden; the state should insist upon gardens; and civilization will revert without gardens.

FLORAL NOTES FOR JULY

BY

WM. HUNT,

O. A. C., GUELPH.

STIRRING THE SURFACE SOIL.—The hotter and drier the weather is, the more need there is of surface stirring and tilling the soil around growing plants, in beds or borders. By hoeing or stirring the surface soil to about an inch in depth, a loose earth mulch is formed that is as necessary and beneficial to plant life as overhead watering. In fact, deluging the soil around plants, as is often done by watering them from the nozzle of a hose, is oftentimes almost as harmful as it is beneficial, unless the soil is kept well stirred. Deep tillage is seldom necessary, and is sometimes hurtful, as it disturbs the roots of the plants. Light tillage and frequent is best in summer time, and is best done when the soil is fairly dry. Never hoe or tramp about on the beds or borders when the soil is wet and sticky. Leave the surface rather rough and lumpy, and do not rake it fine.

DAHLIAS.—These beautiful late summer and autumn flowering plants like a moist atmosphere to grow in. Syringe or sprinkle the foliage every evening in hot weather, if possible. If quality rather than quantity of bloom is wanted, there should be only two or three of the strongest shoots left to grow. All the small weakly shoots should be cut out. If exhibition blooms are wanted only three or four blooms should be allowed to grow on a stem, the small lateral buds should be picked off. Cow manure diluted with water in the proportion of twelve pails of water to one of cow manure well mixed together and allowed to settle before using, makes a splendid fertilizer for dahlias, roses, hardy hydrangeas, or almost any garden plant that requires a stimulant to assist its growth. Once a week will usually be sufficiently frequent to apply this fertilizer. Orange, India rubber plants and palms will also be much benefitted by an application or two of this fertilizer during the summer, more especially if they have not been recently repotted.

CALLA LILIES.—Calla or Arum lilies should be started into growth about the end of July for early winter flowering. If it is

necessary to repot them, now is the best time before active root growth has very much developed. Give them light rich soil and a few pieces of broken pot for drainage. Do not over pot them, as an over large pot induces leaf growth, but few flowers. Good drainage, plenty of water, and a moist warm atmosphere, are the main essentials for success with Callas. Too much soil around the roots is not necessary or desirable when they are grown in pots in the window to secure bloom.

Chrysanthemums.—Pinching the growth of these plants should be discontinued after about the second week in July. The plants should be potted early in August if they have been planted out in the garden; or re-potted into larger pots to flower in if they have hitherto been grown in pots.

Pelargoniums.—These plants, that are often known as LadyWashington geraniums, should not be given much water during July. Keep the soil barely moist, so as to dry off and harden the wood, prior to cutting them back, which should be done in August. Pelargoniums should be stood outside during the summer in a partially shaded position. Stand the pots of these and all similar plants on a bed of coal ashes an inch or two thick. This is necessary to keep earth worms out of the bottom of the pots.

Geraniums.—Plants of these that have been kept pinched back should be allowed to grow freely after the end of July, but the blooms should be picked off until about the end of August if they are expected to flower well during the winter months. Cuttings of geraniums, salvias, heliotrope, coleus, etc., will strike readily in sand outside in the garden at this season of the year, and will make nice plants before winter. Shade the cuttings during the hottest part of the day, and keep the sand well moist, but not soddened. Old plants of geraniums in pots should be cut well back, allowed to break into growth slightly again, and then be repotted. Old plants treated in this way will flower well during winter.

Lilies.—Late in July or early in August is usually the best time for planting new clumps of garden lilies, or of transplanting and dividing old clumps of lilies. It should be remembered, however, that lilies of almost all kinds dislike moving or transplanting very often, so that it should only be done when absolutely necessary from overcrowding. Lilies do not like manure placed near their roots when transplanted, a mulch of strawy manure on the surface of the ground around them is much more beneficial than if placed around their roots under the ground.

Lily of the Valley may be transplanted toward the end of August. These should not be planted too deeply. An inch of soil planted over them is generally sufficient. The soil should be patted down fairly firm with a spade after the pips are planted. A light mulch of long strawy manure applied late in the fall will help newly planted clumps of these beautiful little gems of the lily species. They give the best results when planted in a partially shaded situation.

Flowering Shrubs.—Keep the clipping shears off the flowering shrubs. If the loose straggling shoots of these useful lawn decorative plants have not been thinned out when they were in flower, as I have so often recommended (so that they could be used for ornamenting the mantel or dining room table), the pruning should be left until late autumn or early spring so that the growth can be thinned out without clipping the shrubs into unnatural and oftentimes ugly shapes and forms. Clipping flowering shrubs not only leaves the shrubs unnatural and unsightly looking, but it removes about all of the growth that produces blossom the following season.

Hydrangeas.—Give hardy lawn Hydrangeas plenty of water at the roots during the hot weather if large showy panicles of bloom are expected in autumn.

IN AN OLD-FASHIONED FLOWER GARDEN.

THERE is always something in the old-fashioned garden that pleases us more than the annual flowers from a greenhouse do. This is largely because of memories which the permanent ones of the garden awaken. Coming to us year after year they bring to us circumstances we are pleased to remember. In early summer and late autumn such gardens are replete with flowers. At midsummer it is not easy to find a good variety to help towards a bouquet. It is therefore with pleasure that I append a list of few good ones which I have just observed flowering in an old-time border of flowers.

My first notes record several bergamots, monardas, as they are called. There are *didyma,* the scarlet; *purpurea,* the purple; *mollis,* pink, and *fistulosa,* lilac, all good for this season for their flowers and their sweet-smelling leaves.

The common perennial phloxes are now in bloom. These, to do their best, need rich ground, moisture and a shady place. With the reverse of this the flowers quickly fade. Some of the newer sorts of phlox are very handsome. Nearly all veronicas are out of flower, but one of the newer ones, *Hendersoni,* is just in its prime. This has spikes of large blue flowers, larger than those of any other one I know of.

The common milkweed, *Asclepias corunti,* is sometimes a nuisance in old meadows, but the lovely yellow-flowered one, *tuberosa,* is one of the most attractive of plants now in flower. Another species, *incarnata,* bearing pinkish-white flowers, helps along the midsummer display. A foreign kind, *curassavica,* with yellowish-orange flowers, is another good one. *Anthemis tinctoria,* is a yellow, daisy-like flower, which blooms from June till Sptember ; and if decayed flowers are cut away as fast as they appear, the new ones continue to come in greater profusion.

Much the same can be said of the two coreopses, *grandiflora* and *lanceolata.* Both are yellow, and bear their flowers on long stems, which is a valuable characteristic where flowers are desired for ornamenting tables when placed in vases.

I saw to-day a whole lot of the lovely large blue larkspur, *Delphinium formosum,* in full bloom. The plants I found had been raised from seeds sown in late fall, in a greenhouse, and had been planted out in spring. This is worth remembering, as if sown in spring there are no flowers until the second summer. Hollyhocks are of the same character. A few will flower when sown in the fall, but it is better to give them two full seasons to get the best results.

The old purple foxglove makes a grand display in the early part of the month. This does best treated as a biennial, though it is something of a perennial. The order to which it belongs contains pentstemons, monkey flowers, snapdragons and many other beautiful and useful hardy plants. As with nearly all perennials, if it can be given a little shade, its flowers are much more satisfactory.

The large-flowered bell-flower, *Campanula grandiflora,* in both white and blue variety, is among the most attractive of all. The two are tall-growing, growing three feet in height, and they bloom profusely. Sometimes one half of a flower will be blue, the other white, making a curious spectacle.

Among day lilies, there is one, *Funkia subcordata,* a very light blue, just going out of flower. In a short time, a very late one, with deep blue flowers, *lancifolia,* will make its display, the last one of the season.

In a quite damp, partly shaded place, double English daisies are now in fine display.

These, I believe, were from seeds sown in early winter. These and common wild English ones, as well as the primrose of that country, will survive ordinary winters here if a slight covering of forest leaves be placed over them.

Another old favorite rarely met with now-a-days is the lavender. It stands both summer and winter well, and as a reward for the space occupied, blooms profusely through the midsummer months.

A large-growing but beautiful perennial is the *Cassia marilandica,* a species of the native sensitive plants. There are three natives of these plants, but this is the best. The plant grows so bush like that some nurseries catalogue it among their shrubs. It makes a height of three or four feet, bearing clusters of yellow flowers at the end of the shoots. On account of reported medicinal qualities, these plants are called Wild Senna.—*Joseph Meehan in Country Gentleman.*

FLOWERS FOR INVALIDS.

IN our endeavors to make our sick rooms as cheery and attractive as possible, we surely must not leave out the growing plants. The old erroneous idea that they were unhealthful in a sleeping room appears

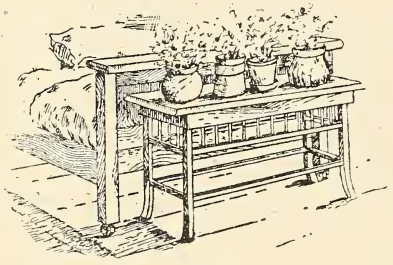

FIG. 2611.

to have faded into the background, much to the good fortune of the sick folks, whose eyes weary for the sight of something green and growing and alive. It is pleasant to watch the new leaves coming out, and the pleasure partakes of gentle excitement when a flower bud is discovered and watched to maturity. The whole room, too, is so much cosier and more homelike for the presence of a few plants in it. They may be scattered about the room, at the windows or on brackets, but a few at least, should be close to the bed—real *neighbors* to the sick one. The illustration given here suggests a simple, oblong table to hold four or five pots of them. It is very easily manufactured at the home work-bench, and when filled with plants and set at the bed's foot, it cannot fail to give great pleasure and comfort. There should be no ugly pots and jars upon it, but a few choice flowers in choice dishes. Artistic pots are as much a part of the kindly little scheme as the dainty posies themselves.—*American Gardening.*

NATURE'S CALENDAR.—June's delicate robe of green falls upon July a mantle already travel worn. The tender freshness of the leaves is gone. The trees of the roadside are dusty and dejected, dropping now and again a sickly yellow leaf which has succumbed to the heat and drought. Too hot for flowers, say you? Mark yon bee and the business-like way in which he hums toward the meadow. Full well he knows how many newcomers July brings into the world of flowers.—*Country Life in America.*

SHADY NOOKS FOR SUMMER DAYS

ANYTHING which adds to one's comfort during the warm weather is welcome, and as the life in our climate during the summer months is largely an outdoor one, any bit of shade which Nature or art may provide to temper the rays of the sun is welcomed. The ideas illustrated on this page may all be carried out at slight expense.

The illustration, "A Shady Retreat," suggests places where one may retire with a favorite volume. If the climb into these retreats is too venturesome for the older members of the household, they will afford much enjoyment for the younger ones. Of course the proper trees are necessary, and as no two are alike the carpenter will have to adapt his construction to the enforced requirements of size and growth.

In the arrangement for the shady seat at the tennis court, rough cedar posts are planted firmly about eight feet apart, three feet below and seven feet above ground, and a framework of built across at the top, and a double seat with back constructed between. The framework at the top should come forward four and a half feet from the end parts on each side, making the top nine feet over all. A series of hoops is carried along one foot apart, giving a curved top. The brackets for this top and the arms and legs of the seat may be made from rough limbs with the bark left on. The same material is used for braces. If gnarled limbs can be obtained for these all the better, but the framework is of secondary importance, as it will be covered with vines by the middle of the summer.

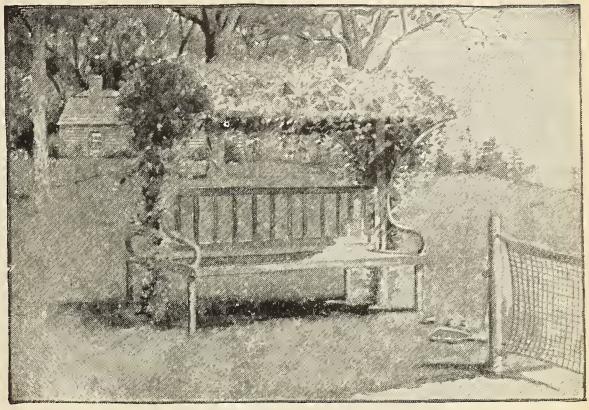

FIG. 2613. A SHADY SEAT AT THE TENNIS COURT.

FIG. 2612. A SHADY RETREAT.

A more simple mode of construction would be to make the top flat. For this use straight pieces instead of hoops. The effect will be less picturesque, but when covered with vines it will make but little difference. If possible face the seats north and south, as more shade will be obtained from the ends when the sun is low in the afternoon.

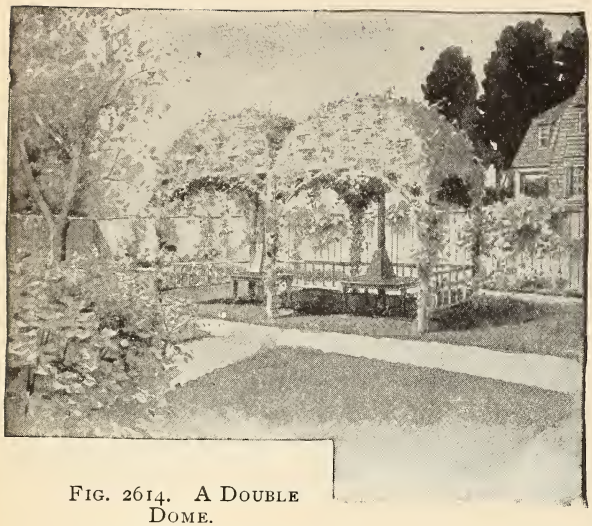

FIG. 2614. A DOUBLE DOME.

Often shade is needed at some special point on the lawn, and the illustration given of a summer house with a double-domed roof and two circular seats offers suggestions for that purpose.

In the arrangement for this summer house six posts are planted. Of course, the size of these bowers must vary according to individual needs, but they must not rise too high above the ground. They will be useless for shade if carried up more than eight feet.

Centre posts rise to a height of eleven feet, and long hoops are carried diagonally from corner to corner. These are firmly nailed to the centre posts, on which they cross. Straight pieces are carried around horizontally from post to post; these are supported by brackets. The hoops may also be connected by light stuff. A seat is constructed around each centre post, and a light railing runs around the sides. At the base the entrance is generally left free of adornment of any sort.

USEFUL VINES.

Many vines which flower lovers would like to use are worthless for the purpose of shade. The sweet pea would be a general favorite if it grew to a sufficient height, but it does not. The morning glory and the wild cucumber are both desirable. The former will grow to a height of twenty feet in a season. The wild cucumber also has a rapid growth, and its flowers when seen in masses are very effective; it is to summer plants what the native clematis is to our perennial vines. Some of the ornamental gourds are available for covering summer houses, their large leaves overlap and afford a dense shade, which is, of course, indispensable in a summer house. The variegated Japan hop will answer for the purpose of shade; it has a rapid growth and an attractive foliage.

A SHADED TURNSTILE.

An illustration which needs little description is the one which an old sketching umbrella frame is utilized for the canopy at the top of the centre post, or constructed of a large wooden hoop supported on a wire properly bent. A pot is set on or in the post

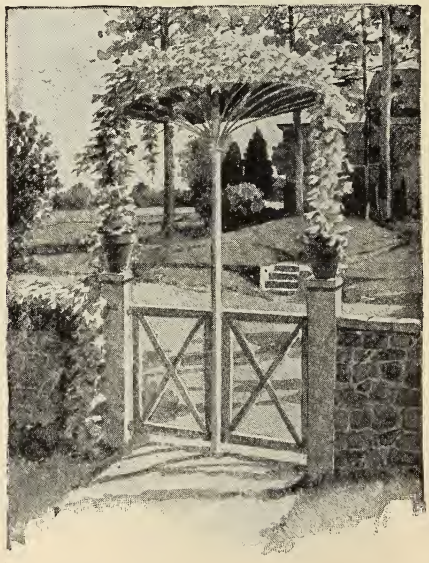

FIG. 2615. A SHADED TURNSTILE.

on each side, and a ladder-like framework of light sticks connects them with the canopy. If desired, wooden boxes may be built in place of the posts. In fact, it would doubtless be a wiser plan to use boxes, as they may be nailed securely to the posts. The centre post must be carried up to a height of seven feet so that it may be passed beneath without chance of brushing the hat of one's tallest guest. Paint in harmony with the house. Nothing will be so pretty or so attractive to plant about this gate as nasturtiums.

THE DOORWAY.

Very often the entrance to a house lacks a canopy or porch in which case the arrangement shown in illustrations shows two

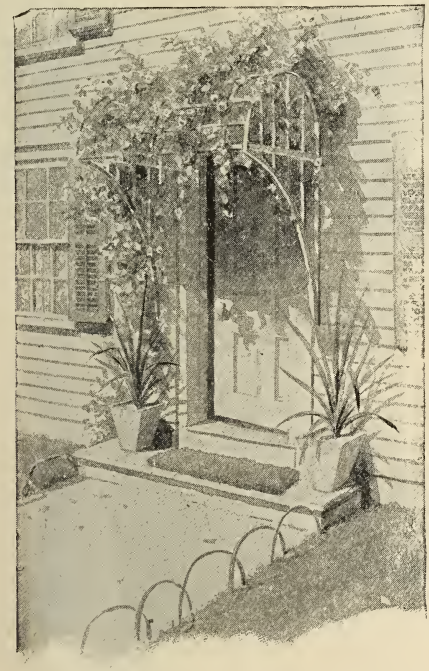

FIG. 2616. A SHADED DOORWAY.

FIG. 2617. A SHADED DOORWAY.

light canopy frames, which, when covered with vines, will afford a grateful shade. A feature of one is the shelf for potted plants. Brilliant geraniums are especially effective for the purpose, their glaring blossoms fairly burning against the dark green of the grape vine's broad foliage. When constructing the simpler one, bring the brackets down well toward the base of the door posts. The door way may be flanked with cacti or other plants of a decorative character. For planting a door having a canopy I would advise Celastrus Scandens or Ampelopsis. The native grape may also be used. All three of the above are attractive and nearly always prove satisfactory.—*Ladies' Home Journal.* *Copyrighted by the Curtis Publishing Co., Philadelphia.*

THE BACK YARD AS A SUMMER RETREAT

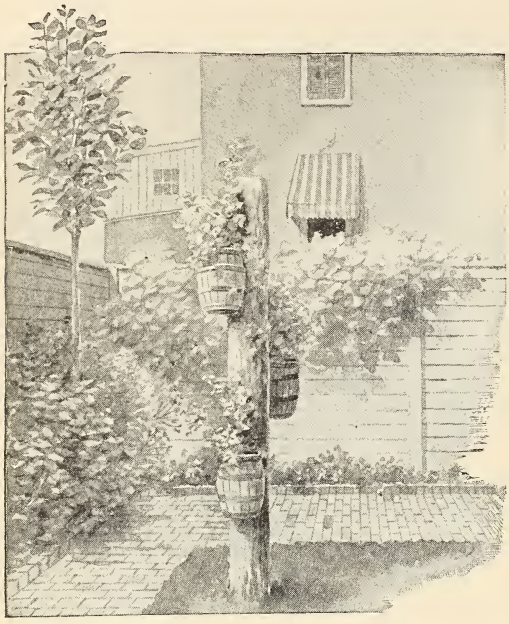

Fig 2618.

THE Englishman realizes the value of flowers in and about his home as a refreshing element. In the city or country the stately mansion or humble cottage is never without its note of color given by potted plants showing at the window or planted in the available space about the dooryard. American city dwellings rarely have more than a few square feet of ground in the rear of the building, but by ingenuity and care much can be done to beautify this little breathing space.

Assuming that a high board fence separates our yard from that of our neighbor, let us consider it the frame for a picture. For a space of two feet from the ground paint the boards dark, quiet green. Above this use a cream, white, or very pale green. This will make a pleasant, harmonious background for the delicate tracery of leaves and flowers growing against the fence. The clothes lines should be fastened to posts set at the outside edge of the walk. If you have much space plant the posts at the corners, as shown in Fig. 2618. The plot of turf in the centre should not be broken with flower beds. A group of acquatic plants can sometimes be introduced, however, by

Fig 2619.

sinking a half barrel in the ground, as shown in Fig. 2619. But do not attempt to sacrifice this valuable space to flower beds or floral effects of any sort unless you have an abundance of room.

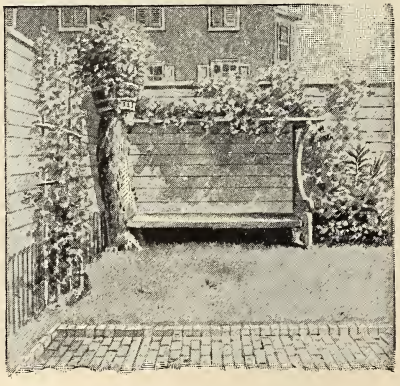

Fig. 2620.

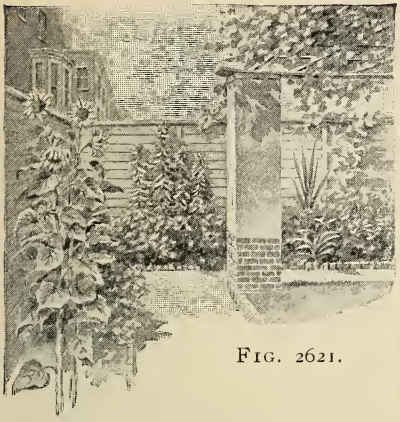

FIG. 2621.

With little expense and the expenditure of time some tree trunks can be obtained from the neighboring country, and used instead of the posts. Use your discretion in sawing off the branches. Pretty rustic effects can be obtained by leaving some of them longer than others. These trees can be located at various points to avoid a set appearance, and will thus add a picturesque feature. A tub containing trailing vines can be placed on top, as shown in Fig. 2620. Brick piers, built at the four corners of the centre plot supporting an overhead trellis (see Fig. 2621) will give a very pretty effect.

When space is very limited the idea suggested in Fig. 2622 is effective. Plant an eight-inch post firmly in the ground at the desired spot. On top affix a large cart wheel, to be bought at any carriage maker's, or make one of strips of board, each one inch thick by two inches wide and of desired length. Nail these on edge to a circular piece of plank at the centre, and tack a stout barrel hoop around the outside rim to secure the ends of the spokes. Nail the circular plank to the top of your post. Surmount the whole with a half barrel in which are planted quick-growing vines, and you will have, in a few weeks, an artificial tree. Vines can be also trained up the post from the ground.

Another effect is shown in Fig. 2623. A number of short rustic posts are sunk in the ground in a circle, leaving out one in the series for a gateway. A taller centre post is placed in the middle. Kegs containing vines and plants are placed on the tops

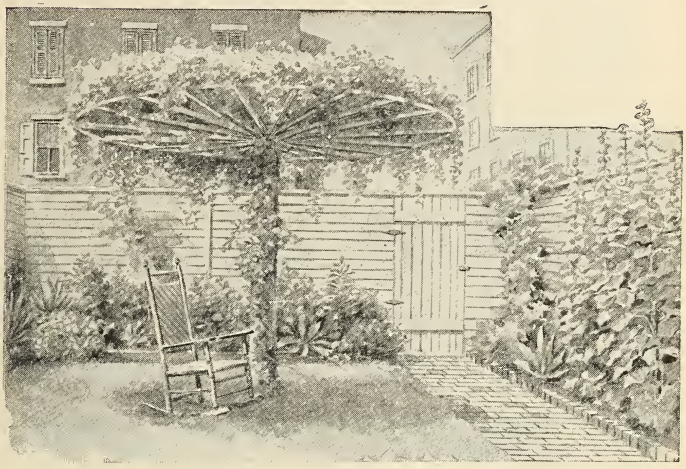

FIG. 2622.

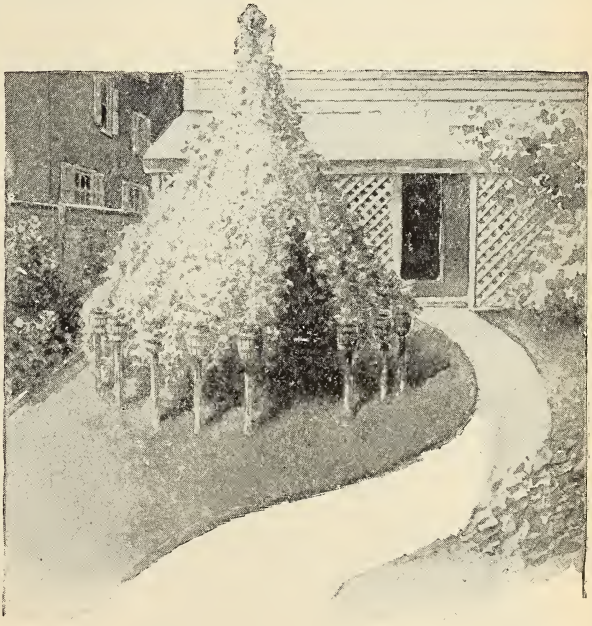

FIG. 2623.

of the posts. Wires are stretched from each to the other and to the centre post, and a very pretty artistic arbor is the result.

A good way to treat the top of a fence is shown in Fig. 2627. Ordinary barrel hoops are bent and nailed to the back of the fence and supported by laths. Boxes of plants are arranged on brackets, or upon the ledge at the back, if permission can be obtained.

Fig. 2624 shows another arbor effect at the rear end of the yard, containing a seat, with pillows which may be covered with water-proof cloth. The assistance of a carpenter may possibly be required to construct this feature, but it is not complicated or expensive, and will furnish a pleasant nook for a siesta.

Oftentimes want of space prevents the swinging of a hammock in the yard. A plan is shown in Fig. 2625. Have two brackets or davits made of two-inch gas pipe and bent at the blacksmith's. At the

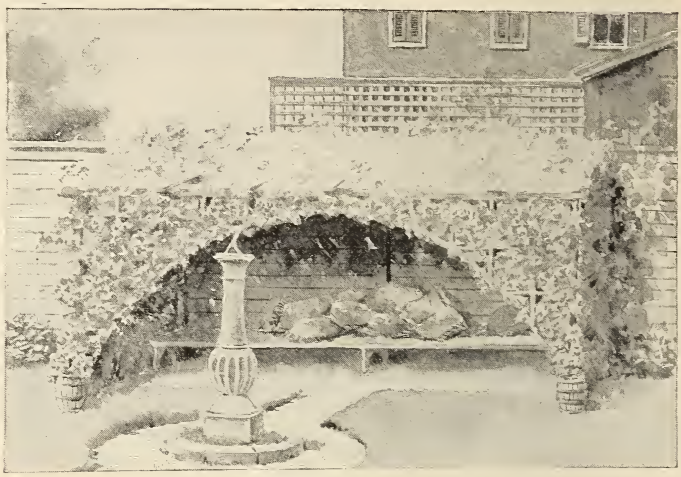

FIG. 2624.

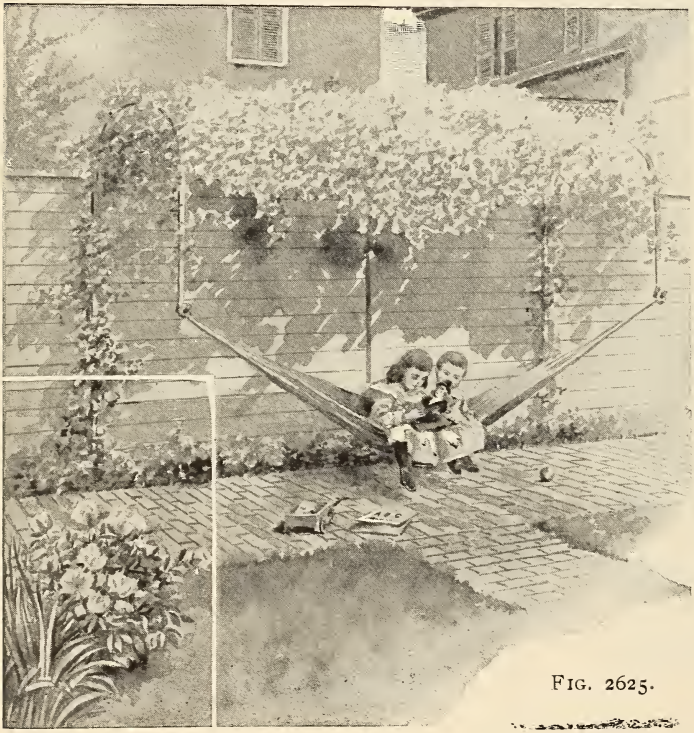

FIG. 2625.

hanging ends hooks are welded, to which hang the hammock. The pipes are fastened securely by bands of iron screwed fast to the fence. Wires may be strung overhead upon which vines can be trained.

The back portion of the yard, being the least used and the most seen from above, is the place for whatever large beds or shrubbery you wish to use.

By grading from large plants to small even a bed two feet in width against the fence may be made to present a large surface of plants and flowers, while here and there, climbing plants, running up on string trellises, may be carried to the top, and along it ;

Fig. 2626
Vine Wreathed Lamp Post

(see Fig. 2627) and if you select the plants so that you have early and late flowers, you may by trimming out dead foliage, keep your garden always in bloom; and don't forget the tall, spear-like plants, such as hollyhocks and sunflowers, and even the despised mullen of our fields, which in England is grown in great beauty in gardens, its velvety gray-green leaves and spikes of yellow flowers contrasting charmingly with more showy plants. These plants make a fine background.

In such a tiny garden it is scarcely practicable to have clipped borders, or any large growing trees; but a clump of shrubbery could be made a feature in place of a flower bed. An unsightly pile of stones may be

Fig. 2627.

transformed into a pretty feature by filling the interstices with earth and planting therein the mullen and thistle. Ordinary corn will give the effect of palms, and will grow fairly well if it receives plenty of sunshine. It needs very little water. Even a brick wall may be made to blossom and fruit as well. It is quite a common sight in England to find small fruit trees trained flat up against the sunny side of a house, and all bearing well.

SOME FLOWER LEGENDS

BY

EDWARD TYRRELL, TORONTO.

RUSKIN writes in one of his books, "The greatest thing a human soul ever does in this world is to see something and tell what it saw in a plain way." I suppose if a person reads something and writes of that which he has read in a plain way, he will also be doing some good.

"There's beauty all around our paths, if but our watchful eyes
Can trace it midst familiar things, and through their lowly guise;
We may find it where a hedgerow showers its blossoms o'er our way,
Or a cottage window sparkles forth in the last red light of day."

But we do not stop to look. "Hurry

along" seems to be the ruling motto. Alas! what beauty and opportunities we miss.

Mr. Norman Lockyer tells while on a scientific trip to the Rockies, he met with an aged Abbe and could not help showing his surprise. The Abbe saw that he was surprised to find him there—told him that he had been ill, and that the doctors had given him up. One morning he seemed to faint and had a dream that he was already in the arms of Bon Dieu. "And," said the Abbe, "I fancied one of the angels came and asked me, 'Well, Mons. L' Abbe, how do you like the beautiful world you have just left?' And then it occurred to me that I, who had all my life been preaching about heaven, had seen scarcely anything of the world in which I had been living, and I determined, if Providence spared me, to see something of the world, and here I am."

The subjects I give this month do not need the pictorial illustrations, as every one is familiar with their faces and can call up before the mind's eye the image of them.

Iris.—The ancients named this plant the attendant of Juno, because its colors are the same as those which the poets and mythological writers have bestowed on the messenger of this goddess. Every quarter of the world possesses the Iris, and excepting the rose, no flower has been more celebrated by the historian and the poet than this genus of plant. The ancients used the Iris, or flag flower, as the symbol of elegance, and on this account it was, we presume, placed by the Egyptians on the brow of the Sphinx, as is to be seen in the collection of antique statuary at the Louvres in Paris, where there are three Sphinxes, all of which have the Iris sculptured on the brow. About the middle of the 12th century, Louis VII of France, having been excommunicated by the Pope, and his kingdom laid under an interdict, was persuaded to take up the cross and join in the war of the Crusades, on which occasion he distinguished himself by a particular blazon, for which he chose the Iris flower. From that time it was called "Fleur de Louis," Louis' flower, which was soon contracted into "Fleur de Luce," afterwards into "Fleur de Lis," lily flower, although it has no affinity to the lily. This flower soon became celebrated in France, being employed in the decorative embellishments of the crown itself. The Fleur de Lis for a time had a place in the British coat of arms, but on the 1st of January, 1800, it gave place to the Shamrock, which is now united with the rose and thistle.

Fuchsia, named after Leonard Fuchs, 1501-1565. The fuchsia was known in France early in 1700, but not in England until 1800. It is a native of Mexico, Brazil, Chili, Peru and New Zealand. In some parts of England it is known as "Lady's Ear Drops." A story is told of Mr. Lee, a well known London florist, when he saw for the first time a fuchsia plant in bloom in a window of a small house in Wapping, he was struck with the beauty of the flower, and asked the woman of the house if it were hers, and if she would sell it. She at first refused, as her husband, who was a sailor, had sent it to her from Brazil. He offered her eight guineas, and promised her two of the first plants reared. She agreed, and he kept his promise, and realized three hundred pounds for his other cuttings. This is the advantage of using one's eyes and brains.

HOW TO BUILD A SMALL CONSERVATORY

[We have frequent enquiries regarding the building of small conservatories attached to houses. possibly this plan, which once appeared in Gardening, may be useful to some of our readers.]

THE drawings here presented show a small conservatory suitable to be attached to a private house. The dining and drawing rooms of many houses are about 15 feet wide, have a chimney in the center with windows on either side of same. This conservatory, erected in conjunction with either of these rooms, would be an artistic and serviceable addition. The windows could be altered to doorways with or without doors as desired. A foundation built of the same material as that of the dwelling, with stone footings carried below the frost line, should be prepared for the conservatory, or if this be too expensive, locust posts could be used instead. If posts are used the tops must be squared, and the proper angle given to those which form the corner of the octagon. German siding could be nailed to posts, the board at the grade line extending below the level two or three inches.

By consulting the scale details in conjunction with the following description you will, we think, understand the method employed in the construction of this building.

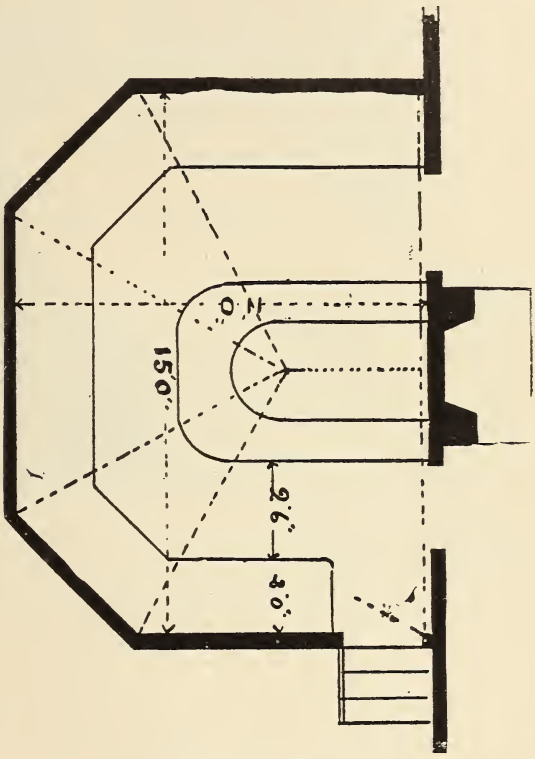

FIG. 2628. GROUND PLAN.

A sill 2 inches by 6 caps the foundations and should be laid in a thin bed of cement. Floor beams 2 by 10 inches, secured to the sill and supported at the house on a 2 x 4 secured to dwelling, should be laid the 11-foot way of conservatory. A plate 2 x 4 inches is next fastened to the top of the floor beams, following the outlines of conservatory same as sill. To this plate the rafter feet are secured by cast iron lugs bolted to the plate and rafter feet. It will be noticed that this plate extends outside of the conservatory, forming a cap for the base, and constructed in such a way that it is impossible for water to find its way into the joints. The height of the sides, as well as the length of the rafters can only be determined by the room available, position of the windows in the second story, etc. This must all be carefully noted before operations are commenced, and a large scale or full-sized drawing made to determine these points. The rafter feet and rafters are joined together with a wooden bracket, as shown, and securely bolted to each. The elevations and dotted lines on plan show the number and position of the rafters. Where the rafters join at the ridge they should be secured to the same with iron straps.

The sides of the conservatory from the top of the floor to the height of 2 feet 6 inches are panels running between rafters and secured to the same. A sash sill caps the panels, and above this are the side sash 1¾ inches thick, hinged at the top to facia and provided with iron straps to open them. The facia, 1⅞ inches thick, runs from rafter to rafter in one continuous piece. The rafter feet should be cut away where the facia strikes them so that the face of the rafter foot and facia are on the same plane. The gutter is constructed in two pieces lined with tin and supported by brackets as shown. Care must be taken that the tin laps over the outside face of the gutter and extends close to the facia cap, as otherwise water will surely find its way into the conservatory. The roof is formed by rafters and sash bars, the bars being gained into the facia cap and mitred against the rafters. The position of these can be readily seen on elevations.

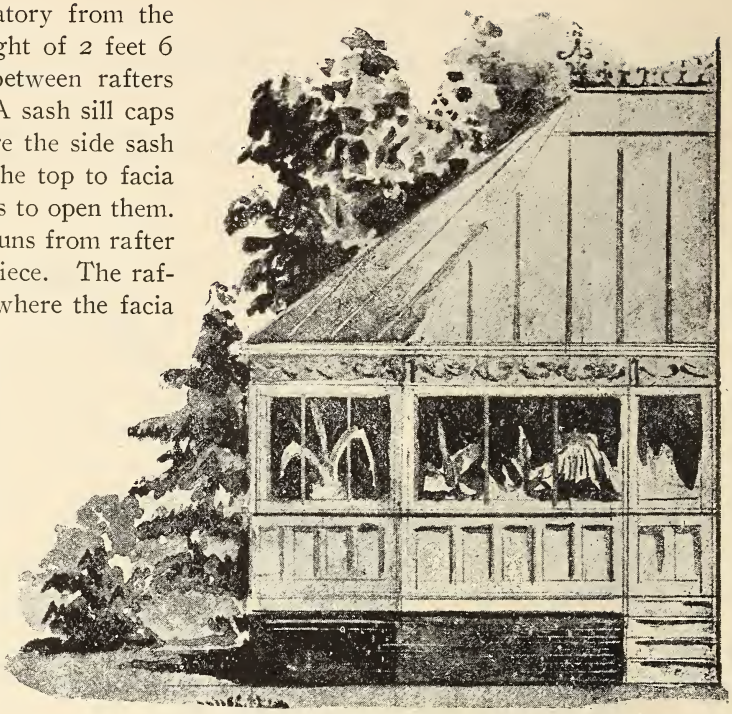

FIG 2629. SIDE ELEVATION.

Either side of the short ridge are small sash for ventilation hung to the ridge, and are intended to open by means of ventilating machinery, which can be procured for a small sum, of dealers in the same.

The tables can be built of wood. They should be strong and substantial, with a band on the front projecting about two inches above the table.

A FERN THAT WALKS.—Most ferns are confirmed travelers. New fern leaves grow out from the underground roots some distance away from the old plant. The average observer scarcely notices this, but there is a native fern that steps off at so lively a pace that its odd habit has long furnished one of the unceasing entertainments of the woods. The walking fern often carpets ledges and tops of shaded rocks. The slender, tufted leaf fronds are singularly unfernlike in appearance. They squirm about and "walk" by declining their taper tips to the soil and taking root there and growing. In time, clusters of new leaf fronds spring from such rooted tips. By-and-by some of these, too, bite the earth and, taking root, start still other colonies, which in turn will continue the progress again and again. Naturally, with the lapse of time, the connection between the older tufts and the younger becomes broken, yet one sometimes finds series of three or four linked together, representing as many steps in the pretty ramble.—*Country Life in America.*

The Canadian Horticulturist

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OUR HORTICULTURAL SOCIETIES

BY

T. H. RACE, MITCHELL.

I INTIMATED in the May number of the Horticulturist that I would refer again to this subject during the summer months. I merely intimated then that the object of the horticultural societies was not to distribute seed potatoes, nor to do any work properly belonging to the agricultural societies. On the contrary, the horticultural societies are to do for the home and its surroundings what the agricultural societies have done for the farm and the dairy. They are intended to do more. Their purpose is to beautify the home and make it more attractive; to purify and cultivate the æsthetic in home life by the aid and influence of nature's gifts, and thereby promote a greater love of home, a deeper love of country, and a higher conception of life.

We have as an inheritance a rich and a beauteous land, the basis of its prosperity being the agricultural interests. For the development of these interests the agricultural societies have done much. But the improvement of the home and the cultivation of the æsthetic art have scarcely kept pace with the higher methods of cultivation and general progress upon the farm. Having recognized this fact, the horticultural

societies have taken up the neglected work of making the home more attractive.

Horace Greeley, in his admirable essay on farm life, says that the best investment a farmer can make for his family is that which surrounds their youth with the rational delights of a beauteous and attractive home. This is as true of the town and city home as of the rural home. Whatever the conditions or larger environments, there is no spot that so deeply concerns the welfare of mankind as the home. Where the child is nurtured there the foundation of his character is laid; and upon the influences of early home life depends largely the character of the manhood and womanhood we are producing. And upon that character depends the character of the nation or country. A country is just what the people make it, with the advantages they possess. Canada is to-day just what we make it. In another generation it will be whatever our children make it. What they may be then depends largely on the influences we throw about them now in their home life.

The work of the horticultural societies is the education of the æsthetic side of life, the development and culture of the finest instincts in our being. Why do our children love flowers? Why do they delight to go to the valleys and to the mountain sides to gather wild flowers? The love of flowers in the child is an instinct as inherent and as clearly defined as the instinct of worship. It is a tenet of Eden in perpetuity, as our poet puts it, and it seeks gratification in the vallies and woodlands to-day as it found it in its Eden surroundings at the dawn of creation. The religious instinct of the child is developed by bringing him into contact with his creator and under the influence of His divine will. His love of nature is developed by bringing him into contact with nature, and under the influence of her visible forms. We cannot get too close to nature ourselves, nor can our children be brought too near to nature's most refining influences in their earlier years. They go to the woods to gather flowers with as true an instinct as they go to the cupboard to gratify their hunger. The purpose of the horticultural societies is to bring that gratification to them. Every flower about the home has its influence upon child life. Wordsworth says in every flower, Tennyson says in every shapely tree, and Emerson says in every running brook there is companionship for man. We may not have the running brook, but we can all have the flowers and the shapely trees, with all their adjuncts in shrubbery and grassy lawn.

We cannot make home too attractive. Horace Greeley has again said that no expenditure pays a man better than that which makes his family fond and proud of their home. The highest order of patriotism to be found among mankind is that which felt its first impulses in the love of home. Teach a child to love his home by making it attractive, and he will grow up to love his country. This should be the aim of every horticultural society, to make a Canadian patriot of every Canadian child. Love of nature; love of home; love of country; love of God. And yet I found a few societies during my tour in the spring investing their means in seed potatoes and giving prizes for farm and garden truck, with not a thought of their homes, their village streets, their school grounds, or even their front fences. What wonder that some of our members at different points went out on strike!

THE ORILLIA HORTICULTURAL SOCIETY.

The Orillia Times says: The record of the Orillia Horticultural Society, as given by Mr. Stephens in connection with the meeting held at Mayor McCosh's last week, affords full justification for its continued existence. It has been doing, in a quiet

way, for several years, work somewhat similar to that which has of late years been so energetically taken up by the Board of Trade. Through the work of the society, the name of Orillia has been brought to the notice of all the fruit growing and Horticultural authorities in Canada and the neighboring republic, in a most favorable manner; and if there be in Orillia one organization more than another which deserves the kindly sympathy and co-operation of our citizens, that organization is the Orillia Horticultural Society. Much of the success of the society, in the directions mentioned, is due to the unostentatious and untiring services of Mr. C. L. Stephens, who has been secretary of the society since its organization, and is this year its president.

Question Drawer

WHITE GRUBS IN MANURE, AND SOME GRAPE INSECTS.

SIR,—I would like very much to hear through the Horticulturist your opinion in reference to destroying the white grub which infests manure piles at this season of the year. My experience is that manure so infested is unsafe to use both for vegetables and young trees newly planted. I have had the young fibres entirely destroyed on newly planted trees by mulching with manure in a dry seanson like the present. The grub leaves the manure, burrows to the roots of the tree, and eats the fine fiibres just as they start and finely the tree dies.

I send herewith two kinds of insects which I have on grape vines. Before the blossoms unfold the entire bunch is stript, leaving nothing but the stem but I fail to find the insect which is destroying the grapes in this way. Any information through the Horticulturist will be gladly received.

Stoney Creek. W. C. WEBSTER.

Answered by Prof. Lochhead, O. A. C., Guelph:

Without seeing the actual specimens of white grubs which Mr. Webster finds in the manure, I venture to think that they are not forms which are injurious. It is quite likely that they are the grubs of dung beetles, and not the white grubs which do injury by eating the roots of plants. Of course it is possible that if there is much unrotted matter in the manure there may be some of the root-eating grubs either hibernating in comfortable quarters or feeding on the vegetable matter. We do not know enough about many of these forms to make definite statements, for they are difficult of study. We would be glad to hear from other orchardists on this point, and have their experience.

The cream colored caterpillars found eating the leaves of the grape are those of the Yellow Woolly Bear (*Spilosoma Virginica*). The moth of this insect is known as the "white miller," and appears in early May, when eggs are deposited on the under side of the leaf in clusters. For a time the young caterpillars are gregarious, but later they feed singly. Fortunately for us, these insects are killed in large numbers by parasites. When numerous, in spite of the parasites, they may be readily killed by the combination Bordeaux and Paris green mixture, which is so well known.

The beetle, which was also found on the grape in company with the caterpillars, is one of the ground beetles, and is beneficial, as it kills caterpillars and grubs of many kinds.

TOP DRESSING FOR LAWNS.

SIR,—Will you kindly inform me what you recommend as a manure or top dressing for lawns of grass and clover mixed and if land plaster is beneficial to grass, as distinct from clover and oblige.

St. Marys. C. FREEMAN.

Answered by Prof. H. L. Hutt, O. A. C., Guelph:

As a general fertilizer for lawns there is nothing better or cheaper than a top dressing of well rotted barnyard manure. Our practice on the lawns at the College is to apply this after the ground freezes hard in the fall, or at any time in the winter when the snow is not too deep. The soluble portion of the manure is washed into the ground with the melting of the snow and the early spring rains, and stimulates an early and luxuriant growth. When the lawn is dry enough to rake in the spring the coarsest of the manure is raked off. The finer parts are thus worked in around the grass roots.

BLACK MEDICK.

SIR,—I enclose a plant growing in our meadows which looks something like Sweet Clover but is much smaller, the bloom is yellow. Is it of any commercial value or is it a dangerous weed. We anxiously await reply through the Horticulturist.

Port Dover. J. E. ANDERSON.

Answered by Prof. H. L. Hutt, O. A. C., Guelph:

The plant in question is Black Medick, sometimes called yellow clover, and botanically known as *Medicago lupulina.* It grows freely in meadows, lawns and waste places, and in none of these cases may it be looked upon as a weed. A weed has aptly been defined as a plant out of place. This plant, or any other, in a strawberry patch, might justly be looked upon as a weed, but on the lawn it forms a thick green mat, and in a pasture field affords good pasture, but it is too short to yield much hay unless supported by other taller growing clovers or grasses.

A CORRECTION.

EXPERIMENTS IN THINNING FRUIT AT THE AGRICULTURAL EXPERIMENT STATION, GENEVA, N. Y.

The comments on the experiments in thinning fruit, which have been conducted at the Experiment Station at Geneva, N. Y., published in the June number of the Horticulturist, do not present correctly the conclusions which one must accept after studying these experiments. It is not necessary now to inquire whether I have reported them incorrectly or whether my statements have been incorrectly reported. The important thing is to present the right conclusion to the readers of the Horticulturist.

The experiments referred to were begun in 1896 and continued for several years thereafter. The object was to include enough trees under experiment so that the work might be conducted as a commercial proposition. The same trees had the fruit thinned year after year, while corresponding trees were left unthinned during the same period. Work was done upon apples, apricots, plums and peaches.

Taking all the experiments into consideration, both with stone fruits and with apples, the effect of thinning was seldom shown to any considerable extent in the character of the yield the following year upon the same trees. In many instances there was apparent some permanent advantage as a result of the thinning, but in many other instances no such advantage was apparent. This leads us to conclude that for trees which have reached mature bearing condition, and which are well fed and in all respects well cared for, the effect which thinning the fruit may have upon the productiveness of the tree in succeeding seasons has not been sufficiently great in these experiments to permit us to look for very much profit in that direction from thinning fruit. In this work the profit from thinning fruit, when there has been any, has for the most part come from the superior size and quality of the fruit of the current season. I wish to call particular attention to the qualification made in the previous statement as to the kind of tree under consideration. There can be no

doubt that young trees may be seriously impaired in vigor as a result of maturing too heavy a load of fruit. Mature trees may be so overburdened with fruit that the weight of the crop causes large branches to split off, thereby doing permanent injury to the tree. In these ways, and in some others, thinning fruit when the tree is overburdened may result in permanent advantage to the tree, but I am firmly of the opinion that there is a widespread popular misapprehension as to the amount of increase in succeeding crops which may reasonably be expected to follow the thinning of fruit on mature trees which are in good condition. As previously stated, in our experiments in thinning fruit, in many cases there has been in succeeding years no apparent increase of the crop, and in other cases the increase has not been very marked as compared with the crops on corresponding trees where no thinning had been done.

Geneva, N. Y. S. A. Beach.

BRODIAEAS.

BRODIÆAS are not as well known as they deserve to be, many flower-growers who yearly plant hyacinths, tulips and other winter-blooming bulbs, being entirely ignorant of their charm and beauty. These bulbous plants are natives of California, and are very widely distributed. All the varieties are very pretty. B. Laxa, with umbels of delicate lavender flowers, contrasts charmingly with B. coccinea (the floral firecracker), with its beautiful fuchsia-like flower of bright cardinal tipped with green and white. Brodiæas have all very long stems, but B. volubilis (or, as it is often called, Twining Hyacinth) is quite a curiosity in this respect. Even if given a support six feet tall, the blossom stock will continue twining round and round till it reaches the top. It has broad, luxuriant green leaves, and when the delicate stem starts it is tipped with a tiny bud, which at last develops into a cluster of pretty pink flowers. Plant two or three pots of these charming flowers for winter-blooming, and the results will surprise and delight you, if you are not already old acquaintances.—*Parks Floral Magazine.*

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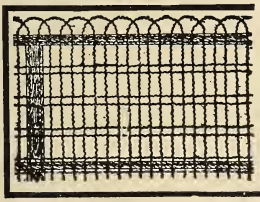

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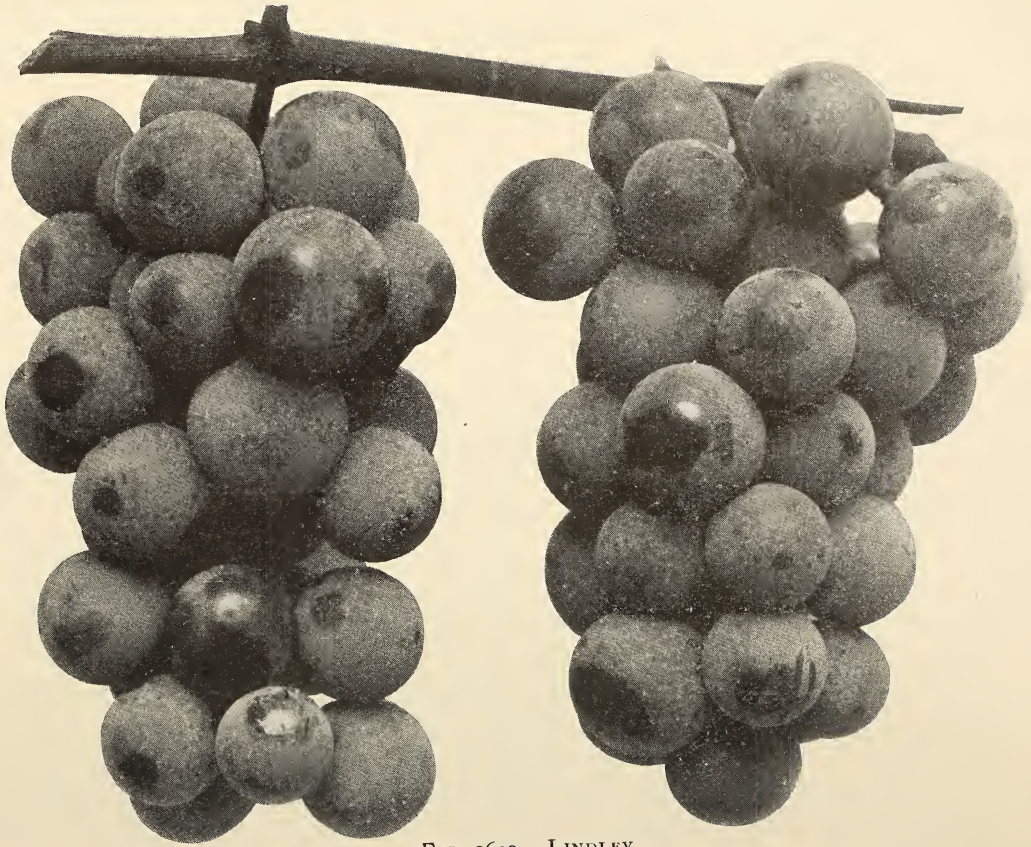


FIG. 2630. LINDLEY.

THE
CANADIAN HORTICULTURIST

AUGUST, 1903

VOLUME XXVI NUMBER 8

LINDLEY

A FEW years ago the Lindley, or Roger's No. 9, was a favorite red grape with vineyardists, and it was planted quite freely in commercial vineyards. It was also a favorite for the dessert table, for its quality is excellent and its pretty and peculiar red color shows up its bunches finely in the dessert dish, along with Niagara and Concord, making a display of our emblematic colors, the red, white and blue.

In some instances vineyards of Lindley have yielded splendid crops, amounting in one case to an average of about thirty pounds to the vine; but it was not long before the variety began to fail in productiveness and become unprofitable. Perhaps this failure was due to the thrip, which is very troublesome on vines of the Lindley, for they weaken them by sucking the sap from the leaves. Anyway, whatever may be the reason, we find that of late years our Lindleys never give a good yield of fruit, and it is very difficult to select out bunches that are really perfect. We cannot, therefore, recommend the Lindley as a market variety, and, since it is scarcely the equal of the Delaware in quality, it cannot displace that excellent little grape for the dessert table.

Perhaps if we could succeed in destroying the thrip this grape might recover the place it held when President Wilder, of the celebrated Massachusetts Horticultural Society, denominated it and Jefferson "the Muscats of America," and when in the Bushberg catalogue it was recommended as a "fine table grape, one of the best of the red hybrids."

It was on the encouragement given by such favorable statements that about ten years ago we planted a vineyard of Lindleys at Maplehurst, but every year they have been growing less satisfactory, until now we expect soon to be obliged to root them out, for they are only a breeding place of thrips, which swarm over to the other varieties.

Lindley is an excellent keeping grape, holding its rich flavor in ordinary storage, well on into the winter, and in a dry atmosphere it turns almost to a raisin.

There is a grape called Mary in our collection which very closely resembles Lindley, so closely indeed that experts are puzzled to decide whether it is really distinct or not. We notice, however, that it is a better grower, that the bunches are more compact, and, if anything, brighter in color. Perhaps it may prove better able to resist the vexatious thrip than the Lindley, and, if so, it will establish its distinct identity.

Editorial Notes and Comments

TOP BUDDING.

GRAFTING has usually been looked upon by the farmer and fruit grower as the only method by which the top of a tree might be changed to some other variety. The operation of budding, which is really grafting with a single but instead of a scion with two or three buds may, however, be practised in almost every case with as much success as grafting. Grafting is best done early in the spring, at which time there is often such a rush of other work that it has to be put off and is then neglected. Budding is done during the summer, when it is usually more convenient to get time for doing it.

The practice of budding is particularly adapted to the top working of young trees when the main branches are not more than an inch or so in diameter, for the buds may be inserted on branches of this size, and the wound made when the branch is removed heals over readily. Detailed directions for budding may be found elsewhere in this number.

A WARNING TO FRUIT GROWERS.

THE Fruit Division of the Department of Agriculture, Ottawa, issued the following warning to fruit growers about the last of June: It is to be feared that the wet weather at present prevailing will lead a good many orchardists to neglect spraying. Last year the summer and autumn were wet, and many growers of fruit failed to give their orchards more than two or three sprayings. Cool moist weather is peculiarly favorable to the development of fungous growths, and it is only by seizing every opportunity and spraying whenever a day or two of dry weather comes along that sound clean fruit can be secured. Wet weather should be an incentive to greater diligence in spraying, rather than an excuse for not spraying. Eternal vigilance is the price of safety in fruit growing, and it behooves every one who desires a full crop of first-class fruit to spray early and often.

ORCHARD CULTIVATION.

THERE is a danger that on account of the wet weather orchards will not receive their usual cultivation, which is urgently needed to destroy weeds, ærate the soil, and conserve soil moisture for future use. If the ground is not stirred it bakes, cracks open, and evaporation goes on rapidly. By stirring the soil through frequent cultivation, thus keeping a loose mulch on the surface, capillarity is broken up and moisture retained. As soon as it is possible, therefore, to get on the ground after a rain, the cultivator should be started in the orchard and kept going as steadily as time and weather will permit.

FRUIT PROSPECTS.

THE following is a summary of the crop report, as obtained by the Fruit Division of the Dominion Department of Agriculture: Early apples are reported a good crop in all sections. Winter apples will be only medium. The fruit has been singularly free from the ravages of insects and fungous diseases, though a few correspondents are noting the development of some scab since the wet weather has set in. The fruit division a few days ago issued a timely warning that spraying with the Bordeaux mixture would be doubly necessary as long as the wet weather continued.

Pears in Southern Ontario and Georgian Bay districts are a good crop. In Eastern Ontario they are a failure in many places.

Plums are a heavy crop in all the plum growing sections, but the rot is developing

with the wet weather, and will, if it continues, cause a serious depreciation.

Peaches are also a large crop. Mr. J. L. Hilborn, of Leamington, says: "Peaches of all varieties except those subject to curl leaf are heavily loaded. The Elberta, a variety much subject to curl, has suffered very little where it was sprayed early, but where spraying was done late or not at all many of the trees will probably die."

Small fruits are a heavy crop everywhere except in the eastern portion of the province, where the drought is responsible for the failure.

THE "KING" APPLE.

THE "King" is one of the favorite varieties in the market, but unfortunately it is so shy a bearer on its own roots that it is not at all profitable. It has, however, frequently been noted that by top-grafting it on any vigorous stock it becomes much more prolific.

The Fruit Division, Ottawa, invited correspondence upon this subject, and has received some valuable information. Mr. C. L. Stephens, of Orillia, has the King top-grafted on Duchess, and finds that its bearing qualities are quite satisfactory. Mr. Wm. Read, of Jarrat's Corners, has twelve King trees grafted on Duchess, and reports equally good results. Mr. Judson Harris, of Ingersoll, has an orchard of two and a half acres, the crop from which the past eight years has never brought him less than $500. Many of these trees are Kings grafted on Russets. Mr. Robert Murray, of Avening, has a number of King trees on their own roots and others grafted on Tolman Sweets, and notes that the top grafted trees are the only ones that give him paying crops.

The experience of these growers and many others goes to show that it would be a very profitable piece of business to top-graft at least some of the early apples to be found all over Ontario with Kings. The King is an apple that exactly fills the bill as a fancy market variety, as it is of excellent quality, color and size, and well known in the English market. If its only defect, want of productiveness, can be cured by the simple method of top-grafting, it should prove a boon to many people who have vigorous trees of undesirable varieties.

THE GIFT PACKAGE FOR GRAPES.

OUR readers, who have been hoping to see a market in Great Britain for Canadian grapes, may be interested in a view of the interior of a salesroom in Covent Garden, London, England. These old wicker baskets, which have been in use from time immemorial in that country, may look clumsy to us, but owing to their great strength they endure shipments for years, thus avoiding that most serious annual expenditure for baskets, which bids fair to keep the Canadian fruit grower poor. Once when fruit prices were high, the gift package came into use, and was looked upon as a saving of trouble; and so it was, but can we afford the luxury? Very often the money we fruit growers pay the basket maker exceeds our own share of the proceeds of our fruit crop. Indeed, the basket bill of many a fruit grower in the Niagara district reaches $1,000 in a single season. Is it not time to call a halt and ask ourselves whether, after all, this old world conservative custom of using such fine strong baskets, as are shown in the illustration, is not worthy of introduction into Canada. Such baskets would last for generations, and are returned free by the carrying companies, so that when once a stock is secured the basket expense is over.

Of course in this we refer only to home markets; for it would be almost impracticable to have export packages returned, even if they were so made that they could be nested.

FIG. 2631. A. FRUIT SALESROOM IN COVENT GARDEN, LONDON.

The illustration is furnished by Mr. W. A. McKinnon, chief of our fruit department at Ottawa, who calls attention to the "packages in which grapes are sold with bloom undisturbed," and also to the packages of peaches and melons.

WESTERN MARKET FOR SUMMER FRUITS.

THAT a northwestern trade for Southern Ontario fruit will develop a hundred fold in the near future, owing to the rapid settlement of northern Ontario, Manitoba, and the Northwest, there is no manner of doubt. Southern Ontario will send to the latter points, not merely advance supplies of early fruits, but in a large measure will contribute the whole supply. The northerly limit for many of the early nd tenderer fruits, as well as for some later and hardier varieties, is found somewhere in old Ontario. The very low winter temperatures of the northern points enfeeble, if they do not kill, fruit trees, vines, and bushes, while the comparative shortness of the season that is free from frost adds to the difficulty of producing fruit on a large or profitable scale. Berries, grapes, peaches and apples are demanded in the west now in large quantities, and as settlement continues and wealth increases the market will widen more and more. The Ontario fruit grower will do well to look to the northwestern market.

Winnipeg should be a great shipping centre for Ontario fruits of all kinds. Strawberries are sold there by a commission firm at 18 cents a box. These berries come, we are informed, from Oregon. Berries from Ontario could be sold in Winnipeg with handsome profit at 10 cents a box. But before this can be done an opening must be made in the market against the active opposition of the aforementioned commission firm, a proper car must be found to carry the berries thither, and the railway companies must be induced to build and to use this car.

What is true of berries is true of most other Ontario fruits; there should be an ever-increasing market in the west. Co-operation and patience in establishing the market, a little experimenting on cars for shipping, and a deal of suasion towards the railway companies, are necessary to the accomplishment of this important object.

FRUIT TRADE WITH THE WEST IN A CRITICAL CONDITION.

THE Fruit Division, Ottawa, gives out the following statement: Numerous requests have been received from Manitoba and the Northwest Territories for Ontario fruit of the best quality, put up in neat and attractive packages of the sort that western dealers prefer to handle. There are immense possibilities in this western trade for the Ontario fruit growers, but up-to-date methods of packing and shipping will have to be adopted at once, or the whole of this great and growing business will be captured by the Americans.

Fruit Inspector Philp, of Winnipeg, writes that matters have come to a critical stage, and that unless Ontario now makes a determined bid for the trade the market will be occupied almost exclusively by fruit from California, Oregon and British Columbia. In the case of apples, even Kansas and Missouri are likely to be strong competitors. According to Mr. Philp, the packages wanted in the Winnipeg market are the following: Early apples, the bushel box; pears, the half box, holding twenty pounds of wrapped fruit; peaches and plums, the crate holding four boxes, similar to those used by California shippers, and which are well known in all Canadian markets.

It is very important that Ontario shippers should realize the critical stage at which this trade has arrived, and that they should make a united effort to capture the western market, not only by perfecting the details of their own end of the business, but by taking up the matter of transportation with the express and railway companies in order to secure if possible a better and quicker service to Winnipeg. At present fruit is frequently forwarded by express from Toronto to Winnipeg via Smith's Falls, and even via Montreal, to connect with the through trains. The result is that the fruit is on the road from 18 to 24 hours longer than it would be if sent via North Bay, and consequently it does not arrive in Winnipeg in the best condition. If the carrying companies can be convinced that Ontario growers are prepared to maintain a steady shipment of fruit in modern packages, and not merely to send west the fruit that the east does not want, put up in all sorts of antiquated shapes, there is little doubt that adequate service will be provided at a rate which will compare favorably with that now enjoyed by Oregon and California shippers.

FRUIT PACKAGES

THE box is fast coming into popular favor as a suitable package for shipping apples in, as well as pears, and many shippers say that the barrel will soon be a thing of the past. However, it will be some time yet before the barrel will be entirely superseded. There are several points in favor of the box, and it is, undoubtedly, by far the best package for early and tender fruit; there is less bulk of the fruit together, and it is, therefore, much easier to keep it at a cool, even temperature. It has plenty of ventilation; there is not so much pressure necessary to keep it tight; it is a handy package to handle; it is square in shape, and utilizes the space on cars or on vessels to better advantage. If to be shipped in cold storage, the fruit can be cooled down to the necessary point very quickly, but it takes a long time to get a barrel cooled to the center. In price, there is little difference between the box and the barrel. The raw material has risen in price, so that a god barrel will cost about 35 cents laid down; what is called the bushel box is laid down for about 12 cents, or 12½ cents. It takes three boxes to the barrel, so it will be seen that the difference in cost is very slight.

It is claimed that nothing but the very choicest fruit should be shipped in boxes, so that the fact of the fruit being in boxes would mean that it was of the very best quality, and that no second grade should be boxed. In British Columbia they use boxes almost entirely for shipping their fruit, and their second grade is shipped in boxes as well as the first, and where no barrels are used this must certainly be done, and it is hard to see how it can be avoided, or just why it should not be done, providing it is properly marked and branded as required by law.

There is as yet no standard fixed as to the size the box should be, and any and every kind and size is being used. Some use the bushel box, so called, holding about one-third of a barrel; others use what is called the 40-lb. box, holding about one-quarter of a barrel, and for extra fancy stuff, especially pears, which are wrapped in paper, a much smaller package, containing only about two or three dozen fruits. There is a difference of opinion among growers and shippers as to whether there should be a standard fixed, or whether everyone should continue to use the size that suited them best. In the St. Lawrence valley, in the neighborhood of Montreal, they are using what is called the Cochrane case, which is fitted with pasteboard squares like an egg case. These are used for choice specimens of Wealthy and Fameuse, and it has been highly profitable. The fruit must be of uniform size to fit the squares, and this matter of uniformity in size should be a cardinal point in packing fruit in all kinds of packages. It need not all be large, but the large specimens should be put together. A smaller size can be put up, in which the only difference will be in the size. In all other respects these should be as good as the first, clean and well colored; and these will often—in fact, in most cases—bring as much money in the British market as the larger ones; but good judgment must be used in the grading, as to uniformity, cleanliness and color.

The question of packages for fruit was discussed at the last annual meeting of the Ontario Fruit Growers' Association, at Walkerton, but there was such a diversity of opinion as to which was the best size of box to use, that no definite conclusion was arrived at.

However, the matter will come up again,

and if it is necessary to have a standard size for the barrel, and the size of the basket is fixed by statute, then we must have some definite standard for the box as well. They must be of different sizes like the baskets, so as to have a small package for very choice fruit for export, but buyers will want to know when they buy a box of fruit what it should contain.—*Farmers' Advocate.*

OUR ASSOCIATION AND THE FALL FAIRS

IN his published address Mr. G. C. Creelman, the superintendent, made the following remarks touching on the way in which out work may help to make the fall fairs of our province a greater success than they have been hitherto:

I believe that the Fruit Growers' Association can materially assist the fairs. We are now making arrangements whereby there will be an active local Fruit Growers' Association in every part of the province. The Ontario Fruit Growers' Association has done splendid work up to this time, but now the time has arrived when they must extend their yearly meetings into a series of meetings, in which the individual farmers may take part. The local Fruit Growers' Association should be asked to consult with the Fair board, and to revise the prize list so far as fruit is concerned.

First: Then we can go a step further and secure the co-operation of the Fruit Experiment Stations. If these stations are any good at all, they must have demonstrated to a large extent at least what is best in the way of fruit for the localities in which they are located. These stations are receiving government money, and their object is to assist those interested in horticultural matters. Are you making enough use of them? Are you asking the superintendent of the station to co-operate with your board? Take the information he has to give and make use of it. If he will not give it, I as secretary of the Fruit Growers' Association will undertake to see that he does give it. But I have no hesitation in saying that these men are anxious to help the farmers in their vicinity. Each secretary should write to the director of the Fruit Experiment Station for his district and ask him what varieties he would recommend for the prize list, or what varieties should be cut out.

Second: The local horticultural societies ought also to assist materially. Give them a place in your main building for the exhibition of hardy varieties of plants, shrubs and flowers. They ought to be asked to have their officers there at certain hours during the fair, to explain how these plants and flowers have been produced, the mode of growing them, etc. An opportunity should be given to ask how to grow this or that. To-day people are discouraged by seeing exhibits so far superior to their own plants and flowers, because they do not know how to produce them. Let us take the other associations into our confidence; they are only waiting to be asked.

Fig. 2632. James Fletcher, F. R. S. C., L. L. D.

AMONG the most acceptable and most effective agricultural convention speakers is our friend, Dr. James Fletcher, of Ottawa, entomologist for the Dominion Experimental Farms. His name appears frequently on the programs for dairy conventions, live stock meetings, the Ontario Fruit Growers' Association, and the Ontario Entomological Society annual meetings. The school teachers' conventions also welcome him. Just now he is on his annual official visit to Manitoba, the Northwest and British Columbia, and we take advantage of his absence to give our readers a sight of his genial face, and a note or two as to his work. Dr. Fletcher is not fond of keeping his personal affairs before the public, and so we will have to be content with but a brief note as to his career.

Dr. Fletcher was born in England, but has lived in Canada for so many years that his attachments to this country have become

thoroughly established. He has great faith in Canada, and is giving his whole energy and thought to assist the farmers of Canada in developing our unlimited resources. For some years after coming to Canada he was attached to the parliamentary library at Ottawa. At the same time he continued his studies of insects, and soon became one of the live working members of the Ontario Entomological Society. To Dr. Fletcher and to Dr. Bethune the society owes a great deal, for they have, year in and year out, kept up the interest and maintained the continuity of its existence.

When Sir John Carling established the system of Dominion farms in 1886, he selected an ex-president and active member of the Ontario Fruit Growers' Association as director, and he also appointed the most active member of the Ontario Entomological Society, Mr. James Fletcher, as Dominion Entomologist. A few years ago Queen's University, Kingston, conferred upon these two gentlemen the degree of Doctor of Laws. May they both live long to enjoy their honors.

Dr. Fletcher has been one of the active fellows, and an efficient officer of the Royal Society of Canada, and has contributed several valuable studies to the proceedings of that body. He has not found time to collect his material into book form, but his papers and investigations may be found scattered through half a dozen series of reports for the past twenty years. While he is a first-class investigator, we consider his strongest point is his ability to interest an audience, and to arouse their enthusiasm in agricultural work. His instruction is clear, inspiring, and wholesome. He quickly gains the attention of his hearers, at the same time he knows enough not to weary his audience. His geniality beams out in his talk, and he gets the confidence and sympathy of the people to whom he is speaking. He is generous to others, not seeking to monopolize time, attention, or credit—he is just the kind of man that one likes to work with. Every one is pleased to see Dr. Fletcher's name on the program, or at the head of an article, and the fruit growers of Canada will be exceedingly pleased to see his portrait on these pages.

OUR BARTLETT PEARS IN ENGLAND.

The pear imports are heavier now than ever. More than half the quantity received is drawn from France, though California is now becoming a keen competitor of the continental pear growers. Fair quantities are drawn from Holland and Belgium, but the French and Californian are best in quality. As a pear-growing country Canada has no equal. We have, during the last five-and-twenty years, had much experience of imported pears, and we have no hesitation in saying that the finest William pears ever marketed from outside sources came from Canada. The French William has had a high reputation in Covent Garden market for over twenty years. The California William is fine. But those sent us from Canada two years ago to report upon officially were of mammoth proportion, with a clear yellow skin, and a melting sugary and juicy flesh. In quantity they were worth from 3s. to 6s. a dozen fruits. Then again, from Australasia we have have had some fine pears sent into London. The colonial pear trade should be made a large business, and when the growers set themselves to satisfy the market's need they will find our merchants only too anxious to get their fruit.—*S. Morgan in Birmingham Post.*

COLD STORAGE OF FRUITS

STORAGE OF PEARS AND APPLES.

BULLETIN 123 of the Ontario Agricultural College, by J. B. Reynolds and H. L. Hutt, treats of an experiment with cold storage of pears and apples, which will be of interest to many of our readers. We give below a summary of the bulletin, a complete copy of which may be obtained upon application to the college.

The two fruits made use of for this experiment were the Duchess pear and the Fameuse or Snow apple, and the conditions experimented upon affecting the keeping of the same were: (1) different temperatures; (2) different sizes of fruit, and (3) different styles of packing., The temperatures aimed at were 31 and 38 degrees. The fruit was all first class, but was graded into large and medium sizes. The styles of packing were as follows:

A. Fruit in an ordinary packing case, holding one-third of a barrel, without wrapping paper or filling.

B. In the case unwrapped, with excelsior at top and bottom.

C. In case wrapped in tissue paper, with excelsior top and bottom and between the layers.

D. Same as C, except oil paper was used instead of tissue paper.

E. Same as D, with heavy wrapping paper between box and the fruit, making the box airtight.

F. In barrel packed in the ordinary way (used on apples only).

From the results obtained the following conclusions are drawn:

1. *For long storage, the medium-sized grade gives better results than the largest sized grade of fruit.* This is evidently a matter of maturity; the larger fruits are on the whole riper than the smaller ones, if picked at the same time. It would therefore appear profitable with choice varieties to pick the larger fruits, if intended for shipping or storing, a week or two earlier than the medium-sized ones.

2. *The style of packing is a most important consideration.* The fruit wrapped with either tissue or oiled paper and packed between layers of excelsior gave by far the best results. The wrapping and filling has a two-fold effect of preventing bruises and preventing the spread of decay throughout the package. In the unwrapped fruit three or four decayed specimens were frequently found in a group, showing that decay had spread from one apple to adjoining ones.

3. *The lower temperature is the more favorable one for the long storage of fruit.* Further experimenting is necessary to ascertain the most suitable temperature for the various classes of fruits, but those under the test kept well at 31 degrees.

4. *Under even the most favorable conditions there is a limit beyond which it is unprofitable to hold fruit in storage.* Cold storage postpones, but cannot avert, maturity and decay. The limit for the Duchess pears was reached between Christmas and New Year's while the Snow apple kept well into March.

HANDLING OF FRUIT AFTER REMOVAL FROM COLD STORAGE.

It has been charged against cold storage that produce quickly deteriorates after being removed from cold storage conditions. That it usually does so, is quite natural. If the produce has been held for a considerable length of time in cold storage, the process of decay has been working, though very slowly. When the produce is removed from the low temperature into surroundings favorable to rapid decay, it is not to be ex-

pected that it will resist deterioration so well as if fresh.

Careful handling after removal from cold storage will lengthen the life of the fruit. In the apple experiment two basketfuls of sound apples were selected from the same lot after examination. At the time of selection, the apples having been examined in a warm room, they were quite wet, owing to deposition of moisture from the warm air of the room upon the cold apples. They were "wets," as they are termed in the old country markets. One basketful of these wets was allowed to remain in the basket as they were. The other basketful of these wets was removed from the basket and spread out thinly over the table. The former lot remained wet for some time, the latter dried off quickly. Next day they were removed to the cellar and left there in the same way as described. After ten days they were again examined, with the following results:

First lot (left in basket)—Sound, 70 per cent; discolored, 30 per cent. (12 per cent. rotten).

Second lot (spread out thinly)—Sound, 89 per cent; discolored, 11 per cent. (5 per cent. rotten).

The difference in these two lots was simply one of drying off quickly or remaining wet. It would have been better, of course, if they had not been allowed to become wet at all. To this end, the fruit should be warmed gradually, moisture not being allowed to form on its surface; or the warm air should be kept from contact with the fruit, by a covering or an air-tight package, until the fruit has attained the temperature of the surrounding air.

COLD STORAGE FROM THE FRUIT GROWER'S POINT OF VIEW.

The foregoing account shows that certain results may be reached by cold storage. It remains to be considered (1) whether or not such storage can be made commercially profitable, and (2) if so, how storage facilities may be obtained by the grower.

CONSIDERED COMMERCIALLY. In considering the commercial side of the question, we must remember that the plan of storage recommended above as securing best results involves two items of additional expenditure: first, the extra cost of packing; and secondly, the cost of storage. The extra cost of packing, Mr. A. W. Peart, Burlington, Ont., who has packed a good deal of fruit in this way, estimates as follows:

"Extra labor in wrapping, four cents per box.

"Wrapping paper and excelsior, seven to eight cents per box.

"Total extra cost, seven to eight cents per box.

"As against this, however, it must be borne in mind that four boxes of bare pears will make about five boxes of wrapped ones."

There is also to be added on the credit side the saving of fruit from bruising and decay by the superior method of packing; and this, for the fruit grower who looks to the future, means, besides the actual saving of fruit, the possibility of establishing a reputation for furnishing an article of first-class quality.

As to the cost of storage, the wisdom or unwisdom of incurring the expense will depend entirely upon the state of the market when the fruit is harvested, the probable difference between present rates and rates a month or three or six months hence, or the difference between local prices and prices in the foreign markets (for storage implies storage in transit as well as in the warehouse). In fact, this being a commercial question, is solved as all commercial questions are, by taking the risk, and depending upon increase in prices to repay cost of holding and shipping. As to the probability of profit from such a venture we quote the fol-

lowing from the United States Year Book for 1900: "Most storage establishments store apples in carload lots at about forty cents per barrel for the season ending May 1st, and it is rarely the case that sound fruit does not advance more than that in price by March 1st, while a rise of $1 or even $1.50 per barrel is not infrequent."

Cold Storage Considered Mechanically. As to the question of securing cold storage accommodation, there is, first of all, the *cellar,* available to all. For late fall and winter storage a well-ventilated cellar will serve the purpose of the family in preserving apples and late pears. In this statement there is, of course, nothing new; but it is necessary to repeat at this juncture that there are three reasons for the spoiling of fruit in cellars: First, the fruit, all or part of it, may be of poor quality when stored. Then the handling, packing, or manner of storing the fruit may be careless. Finally, the storage room may be badly ventilated and uneven in temperature. The cellar should be well ventilated, with the window or windows open as much as possible, so long as the temperature does not drop below freezing. If the windows are left open, the temperature of the cellar will require careful watching, and a thermometer suspended about the middle of the room is advisable. A proper average temperature for a mixture of fruit and vegetables is 36 degrees F., and the temperature of the cellar should be kept at that point as steadily as possible. Of course, with early fruits that are stored during the warm weather of September and October this temperature cannot be reached, nor yet in the spring with late-keeping fruits. The cellar, however, even at these times, will likely be cooler and steadier in temperature than any place above ground, not artificially cooled; and therefore, it is better to make the most of it. Fruit that is intended for long keeping *should be packed and stored immediately after picking,* and not left in heaps in the orchard or the shed.

A small ice-storage is another means for preserving fruit. This is superior to the cellar in warm weather, and, therefore, generally more suitable for this purpose. For private purposes, an ice-storage may be built for $250 and upward, according to the size and style of insulation. It includes a refrigerator, or storage room, and an ice house attached, where the ice is stored in the winter and does its duty without being rehandled. The refrigerator is cooled after the most approved fashion by the circulation of air between that chamber and the ice house.

While this kind of storage is generally satisfactory if properly constructed, it has limitations inseparable from refrigerators cooled by ice. The principal of these limitations is that of temperature. It is difficult to keep the temperature down to the lowest desirable limit in summer, and in winter there is danger of freezing. Especially is this the case while the ice is being put in, and afterwards.

The third method is the large co-operative storage, owned and operated by a company of fruit growers, situated at a railway depot and in the midst of a fruit growing district. This kind of storage accommodation has many advantages. The fruit stored here can be marketed promptly and without long hauls. A large company can afford to build a well-equipped plant, well insulated, and well provided with the best arrangements for refrigeration, and to employ a capable manager to look after the fruit and see that the temperature and humidity of the various rooms are of the proper degree. While a fairly satisfactory plant on a large scale can be refrigerated by the use of ice, the large plants of the future will be cooled by machinery. There is an account of such a plant in the April number of the Canadian Horticulturist for 1902.

A fourth means of storage is the large warehouse, where space may be rented. There are a few of these in Ontario now, there will be more when the demand increases. The rates at these are moderate, so moderate that it can rarely happen that the fruit grower will not have a good margin of profit after deducting the cost of storage from the advance in the price of fruit during the storage season. A price list at hand from a large cold storage warehouse gives storage rates as follows:

Barrel, 10 cents per month, 25 cents per season ending May 1st. Bushel box, 5 cents per month, 15 cents per season. Box containing one-quarter barred, 4 cents per month, 12 cents per season.

SUMMARY.

1. Apples and pears keep best when wrapped singly in paper, and packed in a shallow box not larger than a bushel. They ship best when, in addition, they are packed in layers with excelsior between.

2. Apples keep better at a temperature of 31 degrees than at a higher temperature. The experiment does not show what is the best temperature for pears.

3. Cold storage cannot make bad fruit good; neither can it keep bad fruit from becoming worse. Only good specimens will keep for any length of time in cold storage, or will pay for storage.

4. For long storage, it pays to select the best fruit and to pack it in the best manner known. The extra labor and the cost of material are more than repaid in the greater quantity and better quality of fruit left at the end of the storage period.

5. With apples and pears at least, and, it seems likely, for most kinds of fruit, the fruit should be picked and stored in advance of dead ripeness. The maturing process goes on more slowly in cold storage than on the tree or bush.

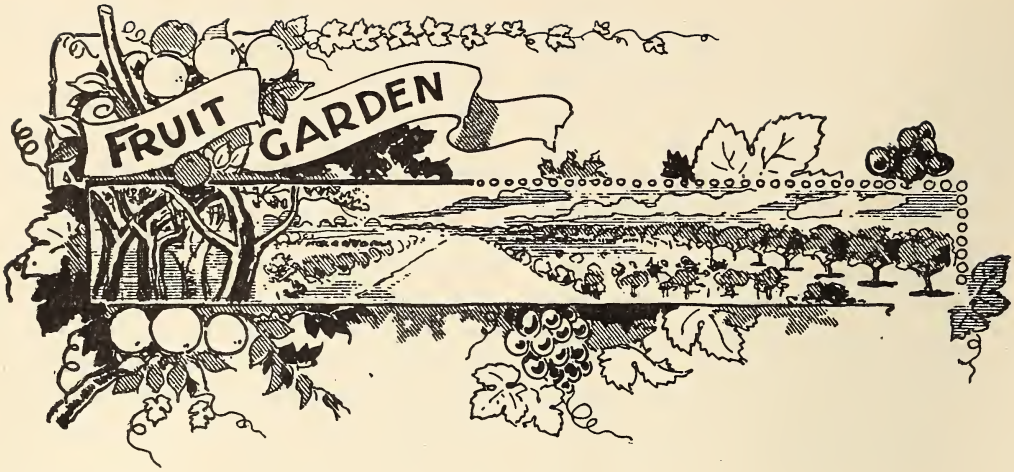
6. With the two kinds of fruit tried, apples and pears, the medium sizes of fruit keep longer than the largest, all being perfect specimens and picked at the same time. It would, therefore, be an advantage, especially with pears and peaches, to pick the larger specimens first, and leave the smaller to mature later.

7. Fruit, on being removed from cold storage, should be allowed to warm gradually, and moisture should not be allowed to deposit upon it. But if the wetting cannot be prevented, then the fruit should be spread out and dried as quickly as possible.

8. With all kinds of fruit there is a time limit beyond which it is unprofitable to hold the fruit in cold storage, or anywhere else. That limit, for sound fruit, is dead ripeness. Duchess pears can be kept profitably until late in December; Fameuse, or Snow apples, until March or April. The time limit has to be determined for each kind of fruit.

9. In addition to proper conditions in the storage room, the most important points in the storage of fruit are the *selection* of sound fruit, *grading* into uniform sizes, one variety only in a case; and careful *packing*.

PEAR TREES do not often reach great size, but they do achieve greatness sometimes by the fruit they produce. Under modern systems of cultivation this is not so remarkable; but it is recorded in a quaint volume of Scottish lore, published in the early part of the nineteenth century, that at Melrose a single pear tree for fifty years yielded the interest of the money paid for the garden and a house in it; while in 1793 two trees there yielded 60,000 pears. Such an enormous crop would be difficult to surpass now, notwithstanding the immense improvements that have been effected in fruit culture.



THE SELECTION OF BUDS FOR BUDDING.

AT a recent meeting of the American Nurserymen's Association, Prof. L. H. Bailey took as the subject of his address, "The Whole Question of Varieties," and at the close of his remarks a question was asked which should be carefully considered by every propagator of trees at this season of the year.

The question was put by Mr. George A. Sweet as follows:

As I understand Prof. Bailey, his suggestion is that the practical nurseryman must select his buds from a known bearing tree of value, and thereby get a valuable strain of that variety. Now, the point that occurs to me is this: We will say that we go to Mr. Hale, who is a great peach man, and say that we want some buds from the best Crawford peach that he has on his place, and we get a package of buds and bud them. Now, next year, is it assumed by Prof. Bailey that we must send to Mr. Hale again and get our stock of buds from that particular tree, or are we at liberty to use the buds that come from the growth of that tree, assuming that parent tree to have been the most valuable Crawford to be grown? If he takes that position, of course it would simplify the question of bud selections; but if he accepts the latter proposition, where is the limit to come? Are they going to deteriorate in the second or fourth generation, or are they all going to propagate true to name, as the original? That is practically what our nurserymen are now doing. I should like to know if, with that limitation, it would be possible to cut sufficient buds from one tree to carry on the business?

Prof. Bailey—I am glad to have that question brought up, because it is exceedingly important, and because on that hinges the feasibility of the whole scheme. I am free to say that I cannot answer Mr. Sweet's question. There are four or five questions involved which have been up a number of times before societies; one comes before a meeting of this sort with more or less theoretical ideas of things which are going to come in the future. I do not expect any nurseryman ever can live up to these ideals in the beginning, but we are going to work along that line, reaching them as nearly as possible. Now, to come down to the great question of Mr. Sweet's, I am so much interested in this matter myself that on my own place I have planted a small orchard of

Northern Spies. I have grafted part of these this year with scions from a King apple tree; I have grafted the other with scions from nursery trees which ten years ago were taken from that same apple tree, for the purpose of finding out whether in the ten intervening years there has been deterioration. I believe, as a matter of theory, that it is the best for the nurserymen every year to go back to his bearing tree, but I do not think you can do it; it is only in rare cases and in special varieties that you can do that, and just how long these nursery trees can be propagated without deteriorating I do not know and no man knows. I believe one reason why the Crawford peach is running out is because we are propagating from so many different strains of it; but whether by reason of a strain having been introduced that chanced to deteriorate in the nursery row, I cannot say. My own opinion is that we ought to try to renew back from the original tree as often as we can, and, when the opportunity arises, once in five years, or once in ten; and I believe the oftener we can renew, the safer we are, without saying that we are not safe if we do not renew. I know, however, that there is such a thing as individuality in a tree, and I am perfectly sure that a great deal of individuality passes over. At present we are thinning out the cattle in the dairy herd by means of the Babcock test; we are finding that many cows never paid for their board, and are thinning out these cows all the time. I wish we could apply a Babcock test to our orchards by means of which we could eliminate those trees that do not pay their board, or at least that we never should propagate from those types of trees.

BUDDING FRUIT TREES

IN Ontario budding is usually performed in the months of July, August and September, the later date being for young trees which have a long season of growth; such as peach trees in their first year from the seed. The essential conditions are, (1) that the bark can be raised easily, and (2) that the growth of the season is so nearly completed that the new layer of wood inside the bark has acquired some consistency, and has ceased to be thin and watery. It is this new wood which, in its ripening process, is to grow the bud fast to the young tree; therefore, the importance of its being in the right condition. This may be known by the young tree beginning to form its terminal buds, in completing the season's growth.

The buds to be put in are obtained from shoots of the current year's growth, and they are usually more perfect if grown in full sunshine. As soon as cut, the leaves are to be removed—all but about a third of an inch of the footstalk, which is left to hold the bud by when putting it in place—and three inches or so of the immature point of the shoot is rejected, as are also two or three of the lower and imperfect buds. A prepared "stick of buds" (as it is termed) is shown at *a* in Fig. 2633. Several of these "bud sticks" may be prepared at one time, if desired, but they must be kept in a damp cloth until nsed, and on no account allowed to become wilted. Scions for grafting, being fully ripened wood, will not be seriously hurt by a slight wilting, but this would ruin buds. When properly managed, by being wrapped in damp moss (sphagnum) and inclosed in waterproof paper, these "bud

sticks" may be sent a thousand miles by mail or express. This is a great convenience in the way of obtaining promising new fruits for trial.

The knife specially made for budding is most suitable, but one who has had some experience will succeed with other knives—a first rate "Barlow" has done good work. It should have a thin blade, a very keen edge and a half-rounding point. And it should be used for no other purpose than budding. An ordinary knife must be at hand also, to be used in any trimming of the young tree that may be required.

The budding may be done in the branches of a large tree if desired; but in the case of a young peach tree (or a young tree of any

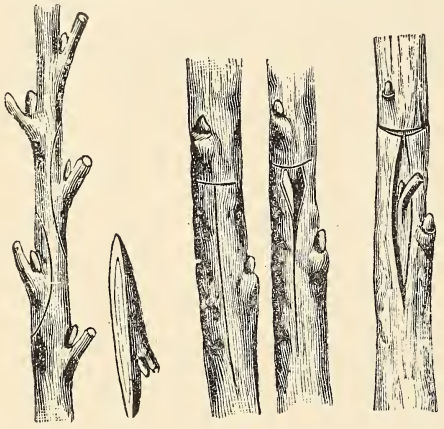


FIG. 2633.

kind) it is best done within two or three inches of the ground. A smooth place in the tree, or branch—the "stock," as it is called—is selected to receive the bud; and if any leaves or young shoots are in the way they are to be removed; and the dirt is to be wiped off with a rag, so that nothing will interfere. An upright incision, about an inch in length, is made with the rounded point of the budding knife, just through the bark, holding the knife in the fingers about as a lead pencil is held; then a short cross incision is made at the upper end of the first one, as at *b* in Fig. 2633.

Now comes the raising of the bark, which is a very particular operation, for it must be done without touching the soft layer of new wood under the bark. If the soft, new wood is touched a wound is made, and while this wound is healing the bud which is put in perishes, instead of growing fast to the stock. The raising of the bark must be done gently, beginning at the upper end of the incision. This is done with the thin piece of bone at the end of the handle of the knife, pressing on the cut edges of the incision and lifting slightly on both sides and the whole length of the incision. In the absence of the regular budding knife, a thin, smooth piece of wood may take the place of the piece of ivory, but the expert budder requires neither, as he uses the rounding point of the budding knife—and saves time. Fig. 2633 at *c* shows the incision made and the bark raised, ready for the bud.

A bud is now to be cut from the prepared scion, which is held in the left hand with the lower end extending outward. The knife is made to enter about half an inch below one of the buds and is drawn toward the operator, nearly horizontally so as to make a thin slice of the wood along with the bud, and coming out about three-fourths of an inch above the bud. Fig *d* represents the bud ready for insertion. (The piece of footstalk of leaf is not quite long enough for convenience in holding). Some take out the thin slice of wood, but this is unnecessary, and sometimes injurious.

The bud is taken hold of by the footstalk left for the purpose, and inserted under the raised bark, beginning at the upper end of the incision and pushing it down gently to the lower end. In case a portion of the bud extends above the cross incision, it is to be cut off so as to make a good fit, according to *e* in Fig. 2633.

Tying is done at once, in order to exclude air and moisture and assist the healing process which is to unite the incision, using

both ends of the material, wrapping moderately tight, continuing upward and covering all the incision but leaving out the bud and the piece of footstalk, and finishing with a knot at the upper end.

The tying begins at the lower end of the bud with the stock. Any soft material answers for tying; woolen yarn, narrow strips of calico or muslin, etc. When much budding is to be done, prepared basswood bark is used, or raffia, which is to be had in the seed stores. The latter is prepared from the leaves of a kind of the palm tree found on the island of Madagascar.

The short piece of leafstalk will remain green, and in a week or ten days will drop off on being touched. If it dries up and sticks fast after the ten days have passed, the bud has failed. But if the bark can still be lifted the tree may be budded again, selecting a new place on the stem.

The tying may remain from two to three weeks, but will need occasional looking after, so that it may be prevented from cutting into the tree, which it is apt to do if the tree is growing rapidly. In that case, it may be untied in a week or so, and tied again but less tightly.

After the final untying, nothing more needs to be done until the next spring. About the time the sap begins to move, the top of the young tree (or branch) is to be cut off about three inches above the bud. The sprouts from the stock will then start, even more readily than the bud, but they must be rubbed off from time to time, so as to throw the sap and the force of the growth to the bud; and in July or August, the stub—the three inches of wood left above the bud in spring—is to be cut off with a sloping cut on the side opposite the bud. This wound will soon heal over and the work will be perfected.—*Exchange.*

THE ASH HEAP AND HEN MANURE.

THE horticulturist should make an economical disposition of two things that are generally regarded as household nuisances—the ash heap and the droppings of the poultry house. There is nothing that will lighten and loosen a stiff soil so quickly as coal ash siftings. Mr. Allen, the celebrated bulb culturist, of Long Island, thinks there is nothing so good in its mechanical effects and he uses large quantities on his lily beds. Take your ashes every morning as they come from the stoves and before they get wet, sift them through a coal sifter, the coarse part you use on your walks about the premises; the fine, dust-like portion you carry to the henhouse and scatter it over the droppings. It will absorb the gases that arise, keep the floor dry and the air pure—a sort of dry earth system. Every few weeks when the weather permits, the contents of the hen house are wheeled out and spread as a top dressing over the beds of perennials. Will it do any good? Yes, four-fold.

Firstly, it has charitably aided that ash heap to lose its existence; secondly, your hens shall feel better and your labors shall be rewarded with more eggs; thirdly, it does the soil of that flower bed good by loosening it, and fourthly, it does the plants good by feeding them. Why, next June the pæonias will fairly clap their hands with joy. Did you ever dream that a four-fold blessing lay concealed in your ash heap?—*Pa. Horticultural Society Report.*

SYSTEM OF GROWING STRAWBERRIES

NEARLY every one who grows strawberries for home use or for market has his own ideas as to how the plants should be set out and cared for. If perfectly satisfactory results are obtained by the system already in use, it is well to be conservative about adopting new methods of culture; but few are ever perfectly satisfied, and any suggestions whereby desired results can be attained more nearly may be worth considering.

There are four general methods of growing strawberries—the hill system, the hedge row, the matted row, and the modified matted row. In the hill system the plants are set out in check rows about 2½ ft. by 2 ft. apart, and no runners are allowed to form. This continual clipping back concentrates the vital forces in the original plant, and instead of expending the greater part of its energy in reproducing new plants, it goes to developing fruit crowns of great strength and vigor. Everything that will aid in this development should be supplied in liberal quantities. Plant food and moisture are two of the most essential requisites. Aim to grow plants with such a multitude of crowns that a bushel basket will not cover them. This system is of special value when one desires to grow extra large fancy berries of high color and quality. It is more generally used by amateurs than by commercial growers; still, this is no reason why it should not be commercially successful for a fancy trade. For the home garden there is no better method, as the best berries are none too good for the family. It is quite important to make a wise selection of varieties, for not all stool up equally well. Marshal, Parker, Earle and Brandywine are excellent for this purpose in locations where they succeed.

The hedge row system naturally follows, for it is really a modified hill system. The plants are set out in rows about 3 ft. apart and 18 to 24 in. in the rows. The first runners should be allowed to root, placing them so that they form a continuous row with the plants originally set. They should not be nearer than 4 to 6 in. for best development. After a row has once been formed, keep all runners cut off by a wheel disk attached to the hand or horse cultivator frame. Nearly all that has been said in regard to the development of the fruit crowns in the hill system applies here, the crowns developing amazingly when once the tendency of runners to vines is checked. The hedge row system has the advantages of the hill system without entailing so much labor and expense. It allows one to cultivate right up to the plants, thus saving moisture and doing away with a certain amount of hand work. When the fruit is ripening, it is exposed to the sunlight, and size, flavor, firmness and color are obtained. Sample, Clyde, Haverland and Glen Mary are standard varieties that do exceptionally well grown in this way. When the merits of this system of culture become more generally known, the writer is convinced that the up-to-date commercial strawberry grower will adopt it. to the exclusion of others.

The matted-row system consists in setting the plants in rows 3½ or 4 ft. apart, 2 to 2½ ft. in the row, keeping off all runners for several weeks until the plants become established, then allowing the runners to form until a space 18 in. to 2 ft. wide is covered. On strong soil and with abundance of moisture, large yields of medium grade berries can be obtained. This method is very generally practiced, probably because it requires the least care. Its disadvant-

ages are many. After the matted row is formed, cultivation practically ceases, except in a very narrow strip, the plant-producing tendency is developed to the detriment of the fruiting strength, and vigorous crowns are few. The plants stand so thickly that in cloudy, wet weather the fruit is apt to decay, to lack flavor and color, and run small after the first pickings.

The modified matted row differs from the foregoing in the fact that after the plants have run so as to form a medium wide row, the rest of the runners are clipped off as soon as formed, and also the weak plants—the row thinned out so that the remainder have a better chance to develop. It is a great improvement over the matted row, and fine berries can be grown.

The strawberry plant is a wonderful little organism, and it is only by carefully studying its behavior under different conditions and modes of culture that we are able to learn how to develop its various functions to suit our individual needs.—*G. A. Drew in Country Gentleman.*

THE TWIG-BLIGHT OF THE APPLE, PEAR AND QUINCE

BY

PROF. WM. LOCHHEAD,

O. A. C., GUELPH.

IT is probable that the year 1903 will be known among horticulturists as the year of the twig-blight, if we are to judge at the time of writing (July 10), from reports from the whole of the southern section from Niagara to Windsor. The disease seems to be widespread, and is producing alarm in the sections which are infested.

Although much has been written about this disease, yet the story of the blight is always an interesting one, and is not as well known among fruit growers as it should be. In spite of all that has been done and written, we do not know of any sure, easy method of controlling the disease. It is true that the cause of the trouble, and the mode of infection have been determined, but it is also true that there is no easy practicable remedy. It can be kept under control by cutting out the affected parts and burning them, but a continuance of this practice renders the trees unsightly, and practically useless in a few years.

The Cause: The cause of the trouble is a bacterium or microbe, which enters the plant through the blossom and tips of growing shoots. It is very frequently observed that some of the flower clusters turn black, as if they had been frost-bitten. The young fruits are also killed, and the disease spreads rapidly to the twigs and limbs. In a limb which has been killed by the blight certain characteristics make their appearance:

1. The leaves die in about two weeks after the limb or twig is killed;

2. They remain attached to the stem, and the tree appears as if it had been scorched with lightning or a hot fire;

3. The inner bark and cambium layer of the limbs are destroyed;

4. The bark becomes almost black or dark brown;

5. At the close of the season of growth there is a distinct line of separation between the diseased and healthy wood, but during the growing season there is but a gradual change in color observed in passing from the healthy to the dead wood.

The greatest amount of damage is done within a few weeks of the first appearance

of the blight, and usually the disease ceases to spread with the close of the season. In such cases the bacteria are virtually all dead before winter sets in, for they cannot withstand drying out of the twigs. In some cases, however, the disease lingers on into the winter, and actually survives the winter. According to Mr. M. B. Waite, of Washington, whenever infections occur in late summer and autumn there is a likelihood that the bacteria will winter over.

Spring Infection: In the spring when the sap gorges the tissues of the twigs and limbs, the dormant bacteria revive and begin to invade new areas. The warmth and moisture combined favor the rapid development of the disease, and upon the exudation of the gummy substance from the bark of the diseased twigs many bees, wasps and flies feed. The flowers visited by these insects are inoculated, and soon show symptoms of the blight. Even after the blossoming period the bacteria may be carried to the tips of growing shoots and find entrance thereto.

Condition of Trees Infected: Unfortunately for the fruit grower, the trees that are making the most rapid growth are usually the most easily infected and injured. One grower reports that the pear orchard which was badly infested with the Psylla this and last spring has almost entirely escaped the blight, but that the orchard which escaped the Psylla is blighted very severely.

Name and Appearance of the Bacterium: The scientific name of the twig-blight is *bacillus amylovorous,* discovered by Prof. Burrill, of Illinois, in 1879. The bacteria are very minute, being about one twenty-thousandths of an inch in diameter. They are oval, rather than round, and are colorless.

Reasons for Supposing These Bacteria are the Cause of the Blight: 1. These bacteria can be taken from a diseased twig grown in pure cultures, and when pear, apple or quince twigs are inoculated with the bacteria from the cultures the disease or blight is produced. 2. In such inoculated twigs the bacteria are again found in abundance; and 3. The same kind of bacteria are found in blighted trees.

Some of the Theories as to the Origin of Blight: 1. The action of the hot rays of the sun during very humid weather derange the machinery of the plant; 2. The action of a small bark beetle, *Xyleborus pyri,* often called the blight beetle, which causes the portion of the twig attached to die; 3. The freezing of the immature wood in autumn and winter produces a poison which the currents of sap distribute, causing the death of the parts; 4. A fungus was supposed to bring about the blight, but this fungus has never been discovered; 5. The action of lightning and atmospheric electricity scorches the twigs; 6. A bacterium enters the plant and kills the tissues. This last theory is the one generally accepted at the present time.

Treatment: Since it is believed that only the bacteria of the late infected portions winter over, it is evident that if these late infections were cut out and burned there would be but a small chance for infection the following spring. But we cannot tell these late-infected parts from the others; so, to be sure, we would cut out all the blighted parts of the tree. In years like this this cutting would be a formidable task, especially at a time when the fruit grower is already overworked. This work may be done any time when the tree is dormant, but the best time is the fall before the leaves fall, for then it is quite an easy matter to distinguish blighted from healthy limbs.

If it were practicable it would be wise to cut out blighted twigs whenever they show themselves, for the disease tends to intensify from year to year.

SPRAYING POTATOES

NOW IS THE TIME TO PREVENT BLIGHT AND ROT.

BY

W. T. MACOUN, C. E. F., OTTAWA.

NOTWITHSTANDING the fact that year after year the potato crop in Canada is very much lessened by blight and rot, and that this blight can be prevented to a large extent by spraying, comparatively few farmers spray their potatoes to prevent this disease. It has been known for about eighteen years that Bordeaux mixture will prevent the blight, and it has been frequently demonstrated by experimenters and by other growers of potatoes that the crop is much increased by spraying. In order, however, to get potato growers to spray it is necessary to keep constantly demonstrating the value of it. The results of the tests made at the Central Experimental Farm, Ottawa, in 1902 and 1903 should be sufficient to induce everyone who lives in a disease-infected district to spray.

In 1901 eight varieties were tested. The average increase in yield per acre of the eight varieties, where sprayed, was 94 bushels. In one variety, however, there was an increase of 171 bushels, and in another 155 bushels per acre.

In 1902 eleven varieties were tested. The average increase in yield of marketable potatoes, where sprayed, was 120 bushels per acre, the yield per acre of marketable potatoes from the sprayed being 310 bushels 12 lbs. per acre, and from the unsprayed 189 bushels 54 lbs. The cost of the bluestone, which is the principal expense, was $7.98 per acre, or 114 lbs. at 7 cents per lb. In spraying large areas the cost would be less. At 40 cents a bushel, an increase of 120 bushels per acre would mean $48, or after deducting the cost of the bluestone, about $40.00.

The object of spraying is to destroy the spores of the disease on the foliage. If the mixture is not there when the spores are there the disease will usually spread very rapidly and soon the tops are destroyed. The foliage should be kept covered with the mixture from the middle of July, when the spores may be expected to appear, until the end of the season, and from four to five sprayings will be found necessary. In 1902 the vines were kept growing 18 days longer by spraying. The vines were sprayed on July 10th, July 22nd, July 30th and August 13th, and probably even better results would have been obtained if another spraying had been made.

Formula for spraying to prevent potato blight and rot:

Copper sulphate (bluestone), 6 lbs.

Unslaked lime, 4 lbs.

Water, 40 gallons.

Dissolve the copper sulphate with hot water or by suspending for several hours in a coarse bag in a wooden or earthen vessel containing four or five or more gallons of water. Slake the lime in another vessel. If the lime when slaked is lumpy or granular it should be strained through coarse sacking or a fine sieve. Dilute the sulphate of copper solution to about 20 gallons, and the lime mixture to about 10 gallons, and then pour the latter into the former, then dilute to forty gallons and stir the mixture thoroughly.

Stock solutions of copper sulphate and lime at the rate of 1 lb. to 1 gallon of water may be prepared and kept in separate covered barrels throughout the spraying season and diluted and mixed when needed.

While the potato beetles are active, 8 oz. of Paris green should be added to each 40 gals. of the Bordeaux mixture. The mixture should be applied by means of a spray pump with a good nozzle in order to get a fine spray, which is necessary to get best results.

A NEW GOOSEBERRY FRUIT WORM

BY

PROF. WM. LOCHHEAD,

O. A. C., GUELPH.

THERE is evidently a new pest working on the green gooseberries, the life-history of which I am not familiar with. This pest is working havoc in the plantations of Mr. Stanley Spillett, of Nantyr, and has caused most of his gooseberries to fall prematurely to the ground. My attention was first called to the work of this insect on the return of Prof. Hutt from an official visit to the Nantyr Experimental Station a few weeks ago, when a small box of infested gooseberries was handed to me with instructions to determine the cause of the falling of the fruit, and their premature reddening. Beyond these particulars there was nothing else that attracted attention, or indicated that anything was wrong.

Four or five days after the box was received the fruit began to soften at the core, and an examination showed the presence of a small caterpillar in every fruit. It had eaten away some of the pulpy tissue near the core, and the fruit had collapsed, and incipient decay had set in.

The caterpillar at this date (July 13) is between one-third and one-half an inch in length; is white, with a slight tinge of green; it tapers slightly towards both ends; its head and cervical shield are dark brown; each segment of the body has several (eight) little elevations, from the centre of each a hair arises; it has three pairs of true legs and five pairs of pro-legs, hence it is probably the larva of a moth.

The caterpillar occasionally comes to the surface, as exit holes are sometimes visible, and if a caterpillar is taken from one berry and placed on another it will soon make its way inside. As a rule, I think it prefers to eat somewhat close to the skin of the fruit, rather than near the core.

The accompanying letter from Mr. Spillett shows how the pest is affecting his plantation. He very naturally would like to know if any other grower is suffering from a similar cause.

It is impossible to give the name of the pest at this stage of its life-history. It is probable that arsenical poisons will have to be used early in the season, just after blossoming, to control the pest, for once within the fruit it cannot be controlled. It is probable also that fall cultivation may be a means of destroying the hibernating stage, although this cannot be definitely ascertained until we know the full history of the insect.

Editor Canadian Horticulturist:

For four years the fruit of all the thin skinned American varieties of gooseberries has been dropping from the bushes just as they are fully grown. This falling has grown worse every year, till now almost every berry is down. At first I attributed this falling to drought and over loading, and resorted to close pruning and mulching to prevent it, but no change in results. E. D. Smith, M.P., of Winona, has had a similar experience. For the last two years I have had strong suspicion that this falling, which has now become serious (at first enough was left upon the bushes for a nice crop), is caused by the presence of a maggot in the berry, as every berry, after lying on the ground for a few days, has a dark spot appear upon the surface of the skin which gradually enlarges until the whole pulp becomes red, but not ripe. Again, the thick

skinned foreign varieties are never so effected.

A lady here informs me that she picked up a tin pailfull of these fallen berries, for they look all right when they first fall. She set the pail upon a table, where it remained all night. Next morning she was surprised to find the pail literally covered with small worms or maggots.

Upon his last official visit Prof. Hutt, of the O. A. C., took away a pint of those fallen berries to investigate, and following his instructions I have a pint put up in a glass jar with thin muslin tied over to see if any grubs make their appearance.

This year I have kept my bushes sprayed continually with flour of sulphur in the hope that the offensive smell would prevent the fly from depositing eggs, but with only failure as a result.

Pearl, Downing, Champion and Red Jacket have not a dozen berries each left upon the bushes.

The first thing is to detect and know the fly that deposits this egg, for I have no longer any doubt of this being the cause.

It seems a great pity that just as we have got such a perfect variety as Josselyn that such a pest should appear upon the scene. I should like to know if others have their gooseberries effected in this way. Last year we lost about 25 per cent. of the crop, but this season 100 per cent.

Nantyr. STANLEY SPILLETT.

THE PRESERVATION OF FRUITS FOR EXHIBITION PURPOSES.

BY

PROF. H. L. HUTT, O. A. C., GUELPH.

MOST of the large exhibitions, as well as the smaller township and county fairs, are held at a time when nearly all of the small fruits are out of season. Consequently we seldom if ever see a good display of these valuable small fruits on exhibition. That they can be preserved in good condition for such a purpose was fully demonstrated by the display of strawberries, raspberries, currants, gooseberries, etc., made by the Ontario Agricultural College at the Pan-American Exposition at Buffalo.

We have at the college also a collection of fruits in antiseptic fluids, some of which were put up four years ago for the Paris Exposition, and others that have been in the jars seven or eight years and are still in good condition.

In the collection put up for Paris and Buffalo neat glass jars of various sizes, with large mouth and glass stoppers were used, but for less pretentious exhibitions the ordinary glass fruit jars should answer the purpose well.

For the benefit of those interested in exhibiting fruits at the fall fairs, as well as for the many inquirers we have from time to time wanting to know how these fruits are kept, we give below brief directions for preserving fruits in this way.

The fruit should be carefully selected, and if possible shown on the branch just as it grew. This prevents it floating to the top, as it would if the jar were not full of fruit. Strawberries are best shown by picking them with long stems and tying the berries about a central twig so that each berry stands out separately. Care must be taken to avoid all bruising, and the fruit should be

arranged in the jar to show it to the best advantage. Usually most of the leaves on fruit clusters have to be removed. When the fruit has been placed in the jar the preservative fluid should be poured on so as to entirely cover all the fruit and fill the jar. The tops should be screwed on tightly, making it air tight. Neat gum labels may be used to show the variety. The printing should be large and legible, and the labels as small as possible to avoid covering any more fruit than necessary. To avoid bleaching as much as possible it is best to wrap the jars in paper and store them in a cool dark cellar till they are wanted for exhibition.

The fluids mentioned below are those recommended by Dr. Saunders, of Ottawa, for the preparation of the display at the Paris exhibition:

FLUID NO. 1.

Formalin (Formaldehyde), 1 pound (16 oz.); water, 44 pounds; alcohol, 5 pints. Allow the mixture to stand, and should there be any sediment, pour off the clear liquid and filter the remainder through filtering paper. This 2 per cent. solution of formalin or formaldehyde has been found very useful for preserving strawberries so as to give them a natural appearance.

FLUID NO. 2.

A solution of boric acid in the proportion of 2 per cent. Dissolve 1 pound of boric (Boracic) acid in 45 gallons of water, agitate until dissolved, then add 5 pints of alcohol. If the fluid is not clear, allow it to stand and settle, when the clear upper portion may be poured off, and the remainder filtered.

FLUID NO. 3.

A solution of zinc chloride in the proportion of 3 per cent. Dissolve one-half pound of zinc chloride in 15 pounds of water, agitate until dissolved, then add one and two-third pints of alcohol. Allow the mixture to stand until settled, then pour off the clear fluid and filter the remainder.

FLUID NO 4.

Sulphurous acid, 1 pint; water, 8 pints; alcohol, 1 pint. Allow the mixture to stand, and should there be any sediment, pour off the clear liquid and filter the remainder.

List of fruits, with names of preservatives to be used in each case. Where two fluids are named, either may be used, but the first is preferred:

Strawberries—Solution No. 1, formalin.

Raspberries, red—No. 2, boric acid; No. 1, formalin.

Raspberries, white—No. 4, sulphurous acid; No. 3, zinc chloride.

Raspberries, black—No. 2, boric acid.

Blackberries—No. 2, boric acid; No. 1, formalin.

Cherries, red or black—No. 1, formalin; No. 2, boric acid.

Cherries, white—No. 4, sulphurous acid; No. 3, zinc chloride.

Currants, red—No. 1, formalin; No. 2,

Currants, white—No. 4, sulphurous acid; boric acid.

No. 3, zinc chloride.

Currants, black—No. 2, boric acid.

Gooseberries—No. 1, formalin; No. 2, boric acid.

Apples, green and russet—No. 3, zinc chloride.

Apples, more or less red—No. 2, boric acid.

Apples, white or yellow—No. 4, sulphurous acid.

Pears, russet—No. 3, zinc chloride.

Pears, green or yellow—No. 4, sulphurous acid.

Plums, dark colored varieties—No. 1 formalin; No. 2, boric acid.

Plums, green or yellow—No. 4, sulphurous acid.

Peaches, apricots, nectarines or quinces—No. 4, sulphurous acid; No. 3, zinc chloride.

Grapes, red or black—No. 1, formalin; No. 2, boric acid.

Grapes, green or yellow—No. 4, sulphurous acid.

NOTES FROM THE NORTH

BY

CHAS. YOUNG,

RICHARD'S LANDING, ST. JOSEPH'S ISLAND.

PERHAPS a few observations on how our fruit trees have come through the winter and the condition they are in at this date in the far away north may be interesting to you. Early in December, 1902, we had a sharp frost before the snow, which usually falls in sufficient depth to prevent the frost getting into the ground, consequently many half hardy plants, roses and shrubs, more especially those which have a tendency to keep on growing into the winter were badly frozen. None of mine have been killed outright, but when the dead wood was cut off this spring they were a sorry looking lot. By the way, tell your readers of the Canadian Horticulturist in New Ontario that the Rambler roses are not sufficiently hardy here. I am sorry to say don't plant them, but they don't ripen up their wood before winter, and covering them will not save them. Perhaps more of these roses have been sold in this district than all the other shrubs put together. Sold upon the recommendation of travelling tree agents that they were hardy as a poplar. It is a case of throwing away money the same as in former years, when we would not plant anything in the apple line except a Spy, King, or Baldwin, not one of which, as far as I know is alive to-day. The reason for this I will leave to some one with more horticultural knowledge than myself.

The winter, as a whole, was fairly mild, although we had a drop to 30 below zero, but there was plenty of snow on the ground at that time. Spring opened up early, or rather the snow went away sooner than usual, with warm, bright sunny days and hard frosty nights, ideal weather for making sugar and inducing sun scald, but bad for fruit buds, the consequence is that most plums and cherries were destroyed in the bud. I found that the English Morello buds were less effected than even the Ostheim, which is supposed to be very hardy. Of the sweet cherry fruit buds which were strung along the branches, only a few opened, and then had not strength enough in them to form fruit. Pears came through fairly well, and apples uninjured. Of the small fruits, strawberries promise an immense crop, and there is plenty of moisture in the ground to develop it. Of the eight or ten varieties of raspberries, Cuthbert has as usual proved the most tender. Grown alongside of Brinkle's orange, both were frozen to the snow line, but the latter makes so much better growth in the spring and is so much finer in quality that for home use it is to be preferred to the former. Of the reds, Loudon is to be preferred to all others I have tried. Currants and gooseberries are a good crop. This would mean with you an extraordinary crop.

The crop prospects I might sum up thus: Fall apples, very good; winter apples, good; pears, fair (this would be poor with you); sweet cherries, none; sour cherries, good; plums, a few (native plums seem no better than European or Japan); raspberries, very good (tons of wild fruit will go to waste in the woods and along the roadsides); currants and gooseberries, very good; strawberries, very good (I expect 1 quart to the plant).

No insect pests have troubled us so far this year.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

CANADIAN PARKS ALONG THE NIAGARA RIVER

NOT only all patriotic Canadians, but lovers of nature the world over, are more or less interested in the preservation of the natural beauties of Niagara. The policy of the Niagara Falls Park Commissioners, as outlined by Mr. J. W. Langmuir before the recent convention of the American Park and Out-door Art Association, shows that the commissioners are aiming at making the Niagara frontier a beauty spot that Canadians may be proud of. Mr. Langmuir's address was intended in some measure as a reply to those who have criticized what they called vandalism on the part of the Canadian commissioners for allowing the various power companies to cut up the Queen Victoria Park. In the course of his address he referred to the financial difficulties which the commission had had to face and the happy solution of these by the concessions to the power companies and others, which in a short time will provide an annual revenue of about a quarter of a million dollars. This the commission proposes to expend in developing the beauty of the river front, in preserving the natural conditions in a locality so historic, and making it the resting place of tired millions who come to see it.

In concluding his address Mr. Langmuir said:

Will you permit me to venture to take an outlook into the future, the near future, I hope, and picture in your mind's eye the completion of all the plans and projects of the Park Commissioners on the Canadian side of the river. It is doubtless known to some of you, at least, that the river bank from Lake Erie to Lake Ontario is vested in the commission. This reserve, now in the process of being made the full width of 66 feet at all points, will be completed, the bank of the river protected from erosion by the construction of an electric railway on the shore line from Lake Erie to the park, a well-constructed and well-kept road, ornamented with shade trees along the entire bank of the river, forming an avenue to Queen Victoria Park. Within the park the works of construction in connection with the power plants completed, with only two artistically designed power buildings in sight, the river bank along the upper roads, the Dufferin islands, and the entire grounds above the Falls restored and beautified to correspond with the finished portion of the park overlooking the cataract. The unsightly buildings overlooking the Falls, in one of which we are now sitting, torn down, and a fine, artistic structure for shelter and refectory purposes erected, and the whole of the grounds, roads and walks in the park

brought up to the highest standard of æsthetic taste. Then, passing from the park surrounding the Falls to the lower gorge of the river, with its magnificent grandeur from the base of the cataract until its majestic banks and rushing waters merge into the quiet scenery of the lower river, we come to the Niagara Glen, immediately north of the whirlpool, comprising 100 acres of territory, unique in its unrivalled and primitive wildness, which by the construction of roads, walks and means of access will have become one of the most fascinating resorts in the gorge, as well as a very paradise for botanists. The Queenston Heights Park, with its grand panoramic views, will be completed and restored, from the historic monument on the summit to the shores of the river below, with the whole river gorge, from the Falls to Queenston, improved and restored and its magnificent views and vistas opened up. In fine, the whole shore of the Niagara river, from Lake Erie to Lake Ontario, will be restored and converted into one continued series of avenues and parks for the recreation and enjoyment of the millions of overworked and tired humanity, where they can come for a time from the turmoil and toil to this Mecca of peace and quietness, to commune with the majesty of nature and the eternal.

BRAMPTON'S NEW PARK.

THE modern idea that parks and pleasure grounds are a necessity in the upbuilding of a respectable town or city is fast gaining ground.

We are glad to be able to record the fact that the town of Brampton, which has long been famous for having one of the largest set of greenhouses on the continent, is now the possessor of one of the finest park properties to be found in any town of its size in the Dominion. This it owes to the generosity of Mr. W. J. Gage, the well known publisher of Toronto, who, on Dominion day donated to the town for park purposes a valuable property adjoining the county buildings costing $20,000.

WOMEN'S CLUBS.

THE ladies of our Horticultural Societies might profitably form themselves into a club for the discussion of questions of Domestic Science or Home Sanitation. The following subjects for such clubs are suggested by Home and Flowers:

1. What can a woman do for improved sanitation?

2. Discuss the water supply of the neighborhood.

3. Discuss impurities of the soil about a dwelling and danger therefrom.

4. Consider the best location for sleeping rooms.

5. Is there any public or neighborhood nuisance which threatens the health of the neighborhood? Is there any preventive to be had?

6. Discuss the best means of ventilating the rooms in a home.

7. Are the children exposed to any danger from disease in the surroundings at school? Appoint, if necessary, a committee to investigate this. Can individual drinking cups be supplied in the school? Are the floors of the schoolroom kept free from dust? Do the children sit in draughts? Are the outbuildings in a sanitary condition?

8. Is the care necessary for exquisite cleanliness conducive to the happiest homes?

Fig. 2634. A Beautiful Street in Dayton, Ohio.

COMMERCIAL BODIES AND CIVIC IMPROVEMENT.

BY

E. L. SHUEY,

IN "THE HOW OF IMPROVEMENT WORK."

THE day is past when improvement of home surroundings is wholly a matter of private choice; when only an occasional "sweet will" decides whether weeds or flowers shall grow over the premises and sidewalks, and whether the principal ornaments of the rear yard shall be tin cans.

Neatly kept yards, well trimmed sidewalks and clean streets are now regarded as high evidence of the city's prosperity as much as large factories, and are one of its best means of attracting desirable citizens. The city must advertise as well as the business man to-day if it would attract capital, good men and women and law-abiding citizens.

Efforts are made by many cities to draw factories and business enterprises to settle within their limits. The advantages of railroad and steamboat communication, the nearness of markets or of raw material, the excellence of labor—all are arguments frequently used with manufacturers and investors to prove a city's opportunities. But in recent days it has been recognized that another element must be named; attractiveness of the home life, the beauty and healthfulness of the city, the excellence of its schools. All these are now seen to be essential to the growing town. In view of this, the improvement and beautifying of the city streets, parks, boulevards, and even of its yards and houses, become matters not

simply of individual preference but of public concern. The investment in attractiveness is no longer municipal extravagance, but prudent expenditure, hence the organization of improvement associations, usually composed of people of a neighborhood, or in smaller cities of an entire community, has come to be a recognized method of encouraging an *esprit de corps* which is essential to the best growth. Such societies have as their purpose not only the beautifying of external conditions but also general improvement and instruction. The Neighborhood Improvement Association is not, it is true, a recent form of organization, but its extension and importance are more fully recognized at this time.

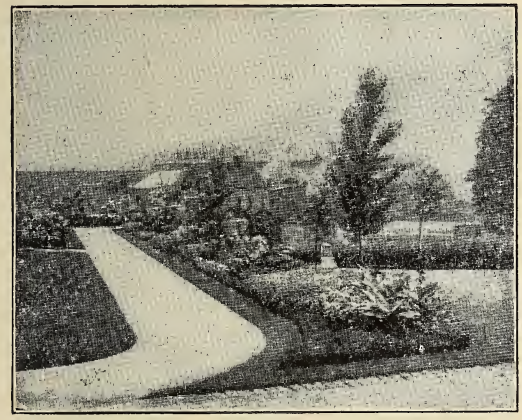


FIG. 2635. A CORNER IN GROUNLS OF WESTINGHOUSE AIR BRAKE CO., PITTSBURG, PA.

The improvement association seeks the general good and asks assistance from every class of kindred social, educational and civic organizations. In the list of the possible helpers are the commercial and municipal bodies of many cities. While these are formed voluntarily or by law for the promotion of business enterprises or for legislation for the city's government and the moral, physical and financial safety of the corporation, yet the application of these functions is wide and varied. Local and municipal bodies—city, town and village councils, etc.—have it within their power very materially to assist these organizations by encouraging and passing well planned ordinances for securing the general purpose for which they are formed so far as they pertain to common interests.

It is within the power of these civic bodies

(1) To see that the streets and alleys are kept neat and attractive;

(2) To provide for the collection of garbage, refuse, etc.

Both of these are important, not only for the sake of appearance, but more especially for the sake of the general health of the community. With good laws, well enforced, backed by the interest of active improvement associations, a town may be revolutionised in a short time. Without the active assistance of well organized, interested citizens, it is difficult to enforce even the good laws. An improvement association is an excellent director of public opinion and educator of personal interests.

(3) To make reasonable but exact rules for good sidewalks, roadways, planting of trees, etc.

(4) To provide for parks.

(5) In short, to put into the form of ordinances and to provide for their enforcement, proper laws for municipal care of public health and improvement, and to enlist members of improvement associations or similar organizations in their best development.

It is important that the work be in harmony, remembering that members of other societies often are willing to give freely of their time and effort to encourage this feature.

In almost every city, the boards of trade, the commercial clubs and similar organizations are the representative bodies for business purposes. Their object is the proper advertising of the city's interests. No better means can be used to accomplish this

purpose than that suggested by the encouragement of the organization of improvement associations within the limits of the city. This is as legitimate a purpose as any scheme for public welfare can be. It is therefore suggested that members of this organization ought

(1) To become familiar with the plans for home and neighborhood beautifying of other cities through a committee on improvements.

(2) To encourage the organization of improvement societies in the city, having one for each neighborhood if the city be large enough. It is necessary that some one take the initiative and give the movement the benefit of well organized beginnings. It is important, too, that there be a body easily reached, to which definite information may go till the improvement society has found its place. What more natural than that representative organizations of the city's interests should foster a definite movement of this kind?

(3) To assist by influence, counsel and funds in practical organization of improvement societies among property holders. A society of this kind will do better if given sufficient means from the beginning to follow up its work of encouragement, prizes for good work, examination into conditions, dissemination of information, and the score or more of directions into which it may extend its efforts.

(4) To bring proper pressure to bear upon factory owners to assist in the beautifying of their neighborhoods, thus emphasizing the attractiveness to the sturdy laboring classes of the city itself. It may be difficult to attain this directly, either by law or by effort of commercial organizations, but neighborhood organizations—which interest employer and employe—will often attain it. There is no longer any reason for the existence in most cities of the ugly, unsightly and disgraceful appearance of many factories and their neighborhoods. Unite the people of he neighborhood for a common purpose, interest the factory owner at least to the extent of cleaning and beautifying his own premises, and the results are soon attained.

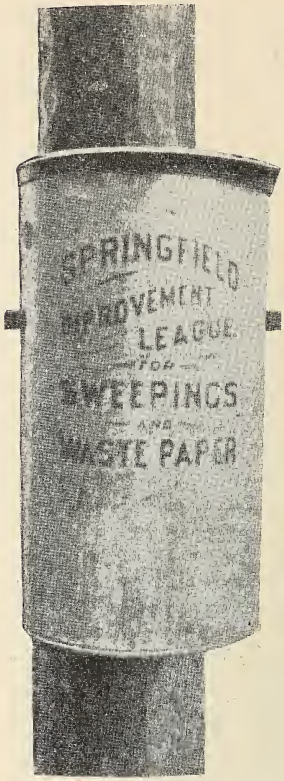


FIG. 2636. WASTE PAPER RECEPTACLE,

Devised be one of the Members of the Springfield, Ohio, League. The advantages are a cover with spring hinge, and the ease with which the can can be lifted from the pole and replaced. The back of the can is shorter than the front which makes it fall over if not hung in place.

5. Encourage the union of local societies with other societies through the league, for mutual information and assistance. Nothing will bring better return than this work and contributions for club funds for the purpose. The difficulty in the past has been the isolation of the organizations and the waste of energy through lack of knowledge of what others attempted. It is the aim of the National League, with the encouragement of commercial organizations and local societies, to unite their efforts and to disseminate information.

With such a union of effort of all local bodies organized for the city's good, there must come some excellent results—and the city's good name greatly magnified. Numerous are the illustrations of its excellent advantages, proving that the reasons here given are not theory but practice.

In this present age great interest is mani-

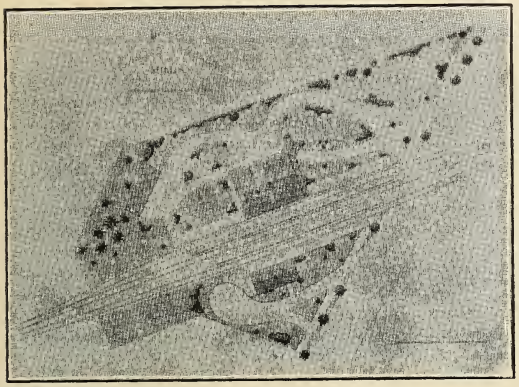
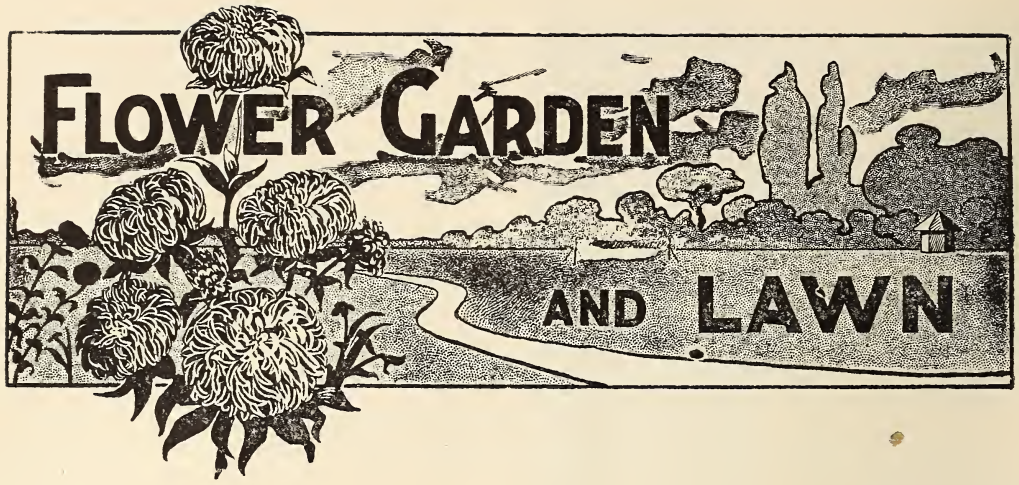


FIG. 2637. MILLIS, MASS., RAILWAY STATION GROUNDS.

fested in railway stations and the grounds about them. The more cultivated tastes of the traveling public demand beauty of surroundings. Whether that beauty be simple or ornate depends upon the situation. The public at large does not care to enter a train from a marble palace in the city and be dumped on a dark, ill-smelling platform at its home station, the station itself looking like an immigrant depot. Railway companies are awakening to a sense of their responsibilities in this regard ,and a few well planned stations and grounds may be found in the United States. The Millis, Mass., railway station and the grounds about it were designed by Mr. Edward P. Adams, landscape architect, of Boston, Mass. The drives are graceful, and so arranged that a blockade of vehicles cannot occur. Persons in carriages alight under cover. Shelter is provided for horses. A novel but excellent feature is the library and reading room on the second floor, for passengers and employes. This, and the pretty little parks about the station proper and about the freight house across the tracks, makes waiting for a train a thing to be born with equanimity. Instead of an eyesore to this village of less than a thousand inhabitants, the station is its pride.

A RELIABLE ROSE.

ONE of the most beautiful and reliable roses in cultivation is the Mrs. John Laing. My experience with this meritorious variety in the nursery has been very pleasant and satisfactory in every way. I had it planted in nursery rows with other valuable sorts and was surprised and delighted to see it bloom so strong and continuously. The roses are large and very full, of a grand, clear bright pink color. The fragrance is delightful, and this, with other attractive features, makes it a general favorite with those who see it. The plants are strong, vigorous, and begin to bloom early and continue to bloom until very cool weather. Last year my bushes were full of buds and others just opening, October 16. During several very cold nights, frosting and freezing water slightly, the roses were not affected. To keep for very late flowers I place a few paper bags over the buds at night and tie them on to prevent being blown off. The Mrs. Laing has great beauty and exquisite fragrance, combined with hardihood and a propensity to continuous blooming.—*Farm and Home.*



FLORAL NOTES FOR AUGUST

BY

WM. HUNT,

O. A. C., GUELPH.

FREESIAS.—Bulbs of these sweet-scented little Cape flowers should be potted now so as to be sure of a few sprays of their deliciously perfumed blossoms during the Christmas holidays. Plant about five bulbs in a four or five inch pot in fairly light rich loamy soil. The bulbs should be planted so that the pointed tips are just under the surface of the soil. A few pieces of broken pot, gravel, or coal cinders may be placed in the bottom of the pot before filling in the soil, so as to secure good drainage. Give the soil a good watering after the bulbs are potted, but do not give them any more water until the soil shows signs of dryness. Stand the pots outside in a partially shaded position where they do not get the full heat of the sun's rays during the hottest part of the day. As soon as the grass-like foliage begins to appear above the soil, water may be given them more frequently. Take the pots indoors early in September before the frost touches them. There is nothing more acceptable in a window of plants than a pot of freesias when in bloom, and the bulbs are so inexpensive and easy of culture that no plant lover should be without a pot or two in the window or greenhouse. The bulbs also under proper treatment renew and even increase in numbers from year to year, a fact that makes them of even more value than many of the winter and spring flowering bulbs.

EASTER LILIES.—These showy sweet scented favorites, that are in such demand through the winter, and more especially for Eastertide decorations, have not of recent years been such an unqualified success as they were fifteen or twenty years ago, when Lilium Harrisii could frequently be seen six or seven feet in height and bearing eight or ten of their beautiful white blossoms, but recently plants three or four feet in height with even three or four perfect blooms are oftentimes difficult to obtain. The lily disease is responsible for this change, and there seems to be no certain remedy for the dis-

ease at the present time. If any of our readers, however, desire to try a bulb or two of either Lilium Harrisii (Bermuda lily) or Lilium longiflorum—which is considered by many growers to be less liable to disease than L. Harrisii—they should be secured as early as possible to have them in flower at Easter in the win- have them in flower at Easter in the window. A seven inch pot for the largest size bulb will be necessary, whilst a six inch pot will do for a second size bulb. The method of potting, soil, and future treatment as recommended for the Freesias will suit the lilies mentioned.

Window Boxes and Hanging Baskets. —These will require plenty of water, as the plants will by this time have a mass of roots to absorb the moisture, as well as a large amount of growth to support. The soil in them will also have become very much exhausted. An application of liquid manure, made from fresh cow manure prepared as described in July number of Horticulturist, will be found a good stimulant that will help to carry the growth and beauty of the plants through until late autumn.

Pansies.—If early blossoms of these pretty bewitching flowers are wanted early next spring, the seed should be sown now. Sow the seed in a shallow box, about two inches deep and of required size. Place the box in a partially shaded place until the plants have attained their fourth leaf, when they should be transplanted into a cold frame, where they can be given the protection of a sash, or of even a few boards during severe weather. A box about ten inches deep and minus the bottom boards, placed over a good rich spot of soil in the garden will answer very well to winter a dozen or two of pansy plants in.

Pelargoniums.—Plants of these spring flowering favorites should be cut back some time in August. Prune them back to within an inch or so of the two-year-old wood. Give them very little water, keeping the soil barely moist until growth commences. As soon as the new growth is about a quarter of an inch in length, they should be repotted. Shake all the soil from the roots and repot them into soil to which nearly one half of fine sharp sand has been added. Give them a size smaller pot than they have been growing in, and do not over water them until growth has well started. When the growth is about two or three inches in length, repot them into pots two sizes larger, using a rich loamy compost and some pieces of broken pot for drainage. The new growth can have the tops pinched off once or twice during the winter if it is inclined to grow spindled. Pelargoniums, or Lady Washington geraniums as they are sometimes called, are very liable to attacks of aphis or green fly when in the window. A strong solution of tobacco water, or fumigating the plants with tobacco smoke, will destroy these pests to window plants. Keep the plants outside until early in September until danger from frost is probable. The shelter of even a sash and frame for a few weeks in early autumn is often preferable for many other plants besides pelargoniums, as oftentimes we have several weeks of beautiful warm weather after the middle of September, when many plants that are to winter in the window or greenhouse will do much better out in a cold frame or somewhere where they can be protected from slight frosts if necessary. But care must be taken to watch the thermometer closely for sudden changes in temperature, or possibly the plants may be exposed for just one night too many and be nipped by the frost.

FIG. 2638.

TUBEROUS ROOTED BEGONIAS

BY

WM. HUNT,

O. A. C., GUELPH.

AMONG the almost innumerable varieties and types of flowering begonias now grown, there is none more deserving of attention or more beautiful for summer decorative purposes than the tuberous rooted varieties. Whether grown as pot plants entirely, or started early in the season in pots and then transferred to the flower bed or border later on; or if even the dry tubers are put at once into the open ground at the proper season, they will, with only average attention and care, and a fairly suitable position given them to grow in, give a grand display of their beautiful and showy wax-like blossoms, both single and double, and in such a variety of shade and color that well repays the flower grower for the comparatively little skill and care required in their culture.

And yet how very few amateur plant growers there are who are thoroughly successful with them. Some can, however, grow them to perfection, as is evidenced by the splendid specimens that are seen at almost every floral exhibit that I have had the pleasure of judging: specimens that had

been grown entirely in a window, or in a sheltered position out of doors, or perhaps in a cold frame.

The collection of Tuberous Begonias at the O. A. C. was possibly the one feature that attracted the most attention and excited the most admiration amongst the forty or fifty thousand excursionists who visited the college greenhouses during the recent June excursions. The fact of the intense interest shown, and the many questions asked as to the culture of these begonias, has led me to write the following brief notes regarding their care and treatment. The accompanying cut (Fig. 2638), from a rather poor photograph of a group of these plants at the O. A. C., will give some idea of the floriferous habit and the beautiful foliage of the tuberous begonia.

Selecting Tubers.—Select good, firm, sound tubers; pulpy or soft tubers seldom produce good healthy plants, even if they grow at all. The best time to procure tubers is when they are dormant and just before they start into growth. Late in March or early in April is about the best time to secure them, as that is the time they start their growth as a rule, after having been kept dormant and dry all the winter.

Starting Tubers.—Start the tubers in April in small pots. A pot about three times larger in diameter than the tuber will be about the size. Use plenty of small broken pieces of pot or fine gravel stones for drainage in the bottom of the pot, one-third full will not be too much. Use a mixture of soil composed of one-third part of fine sharp sand and two-thirds of light, rich loamy potting soil. If soil of a heavier nature is used, use fully one-half sand, well mixed with the same quantity of soil. When potted, the top of the tuber should be about on a level with the surface of the soil. Give sufficient water to thoroughly moisten all the soil in the pot, and do not give any more water until the soil shows signs of dryness, but do not on any account allow the soil to become dust dry. Keep the soil barely moist until growth has well commenced, when water can be given a little more freely. Stand the pot in a warm place in the window or greenhouse, but in such a position that the sun does not strike directly on it, especially during the hottest part of the day, as the sun will scorch the leaves, more particularly if they are damp from recent watering.

In about three or four weeks from the time of starting the tubers they will probably show a little growth. As soon as the growth has attained to about three inches in height, the tubers will most likely have grown a sufficient supply of roots to allow of the plant being repotted. This can be ascertained by carefully knocking the plant out of the pot to examine the roots. If a good supply of roots has been grown, the plant should be potted on into a pot about two or three sizes larger. A well established and nicely rooted plant will require a pot fully three sizes larger than the one it was started in.

Repotting.—In repotting use a little less drainage; an inch of drainage will usually be sufficient. Good loamy soil, fairly well enriched with dry cow manure and about one-sixth part of fine sand mixed with soil will make a good soil for these begonias to grow and flower in. Press the soil fairly firm around the roots of the plant, being careful not to break the ball of earth around the roots or damage them when repotting. Water the plant thoroughly once after repotting, and do not give water again until the soil shows signs of dryness. When growth has freely commenced the plant can be watered more frequently, but too frequent and too heavy waterings before growth has well commenced, and allowing the sun to strike directly on the foliage, especially after watering, are oftentimes the cause of failure in the culture of begonias.

After Treatment.—A temperature of 60 to 65 degrees and a partially shaded position, well sheltered from strong draughts and high winds suits these begonias, whether they are grown in the window or out of doors. Sweeping winds are even more harmful than the sun when the plants have become hardened, but partial shade in the hottest part of the day is very beneficial if good blooms and clear, clean foliage is desired. A cold frame covered with a sash thinly shaded with a coat of whitewash and the frame placed so that it slopes and faces towards the north will suit tuberous begonias very well during the hot summer months. The sash can be removed during the hottest part of the day to advantage, more especially if the plants are shaded slightly from the direct rays of the sun. Plenty of ventilation by tilting the sash should be given both night and day, as these begonias dislike a too close humid atmosphere to grow in. Partial shade, careful watering, plenty of air, shelter from winds, and a fairly rich light loamy soil are the main essentials necessary for the successful culture of the tuberous begonia.

Drying off and Resting Tubers.—Towards fall, when the flowers and foliage begin to look shabby and rusty, less water should be given the plants. When the foliage has become nearly yellow and the flower stems begin to decay. no more water should be given them, but they should be removed to a dry warm shed and kept quite dry and free from frost. A dry temperature of about 45 or 50 degrees suits the tuberous begonia splendidly when dormant in the winter, but at no time should either the growth or the tuber be exposed to a temperature below 40 degrees.

Where a number of these begonias are grown it is customary to shake the tubers out of the soil and pack them in sand, charcoal, etc., but I have had the best results by allowing the tubers to dry off in the soil they have grown in, and by placing them away in the pots in a dry cool temperature 15 or 20 degrees above freezing point, and keeping the soil perfectly dry during winter until the following spring, when they are shaken out of the pots and treated as I have described.

I have omitted any mention of the starting of these begonias from seed, as I consider their culture from seed is not only a delicate operation to be successfully carried out without the aid of a green house or at least a sash and frame, and as the tubers can be purchased very cheaply when dormant and give quick results, it is scarcely worth while waiting for the more tedious and uncertain results attained when the plants are raised from seed, as it would take at least two seasons before seedling plants could be had in flower if the seed was started in pots in the window.

Tuberous rooted begonias are decidedly an amateur's flower, and are much easier grown than many varieties of window plants if given only fair treatment in their culture. Too much water, when the tubers are first started, and improper drainage is too often the cause of failure in the culture of the tuberous begonia.

THE HOME GROUNDS

A FRIEND, who has spent some money and much time on his home grounds, is not satisfied with the result, as the effect is not what he supposed it would be. He supposed that a lawn primarily meant an expanse of grass surrounded and partially covered with trees and shrubs. We say, "we will walk on the lawn," and the thought of soft, velvety, close-shorn grass is immediately present. William Robinson, the noted English landscape gardener, speaks of it as a garden, while to give the true idea of it to people on this side of the ocean we must call it the home grounds. A good lawn includes trees, flowers, shrubs, rocks in some localities, etc., and the value and effect of a lawn consist in the arrangement of these things. Mr. Robinson advocates, in the garden, the treatment of the "garden" in a manner which will harmoniously unite it with the landscape beyond, thus making a beautiful whole of the near and distant surroundings of the house. The house must be architecturally in harmony with the locality, and then the grounds, before and behind the house, if there be room, must correspond with the architecture of the buildings, and with the topographical and other points of the landscape to be seen from that point. If everything is in harmony, according to nature's work there, the lawn effects will be satisfactory to the artist and to the unskilled as well. The front doorstep is a good point ground. And if there be any landscape befrom which to study the lawn, and its backhind the buildings it must be studied from the back stoop, if there be one.

VIEWED FROM THE FRONT DOOR.

The planting of the lawn, therefore, must be planned from the view at the front door. In general terms, it may be stated that, as a rule, the front lawn must be an area of grass, bordered by trees, shrubs, and sometimes flowers. The friend mentioned planted his trees and shrubs mathematically distant from each other, and in regular lines. The trees have grown to a good size, and now all distant points are shut out from view, and the turf of the lawn has become spotted and uneven in color. He forgot when he planted his choice trees that they would some time grow to large size, some of them at least, and so now he is "cabined, cribbed, confined" in a shady grove, with no outward look. The ground was made fertile and deeply worked, and the plants were well and carefully set, where himself and his hired man decided they would best be placed. The future prosperity of the trees was well provided for, but no account was made for ultimate size. Any good landscape gardener would probably have suggested to him that with care such trees would grow tall and wide, and that they should have been so planted that the beautiful distant views should never be completely hidden. The popular notion that a lawn is a place for us to treasure beautiful trees, flowers and shrubs, is entirely misleading, being too narrow, so that in attempting to get and preserve beautiful things we deform our grounds, whether they be large or small. We are apt to plant too much, and to spoil beautiful pictures which would be far more attractive than the possession of rare plants, often too crowded to preserve their natural beauty and real value. Open outlooks are frequently lost through the ambition to have a fine specimen of some rare tree or shrub.

TO BROADEN THE OUTLOOK.

As far as practicable, the lawn should be so planted that it may seem as wide as possible to be made. Planting the borders in clumps with peninsulas of grass running

into and apparently behind them makes the lawn look as if it extends outward indefinitely, adding materially to the broad effect where the area is decidedly limited. These points of turf can be put where there is a line of view to a beautiful distant landscape, and so be made doubly useful. A New Hampshire man whose lawn was large and set full of trees and shrubs, found that his house was too much shaded for good health. So he employed an intelligent Boston landscape gardener to advise him what best to do to keep a good lawn and also plenty of sunshine. Most of the trees around the outside were left, some needing a little pruning; the trees in the central portions were dug out, and the shrubs were dug out and planted in masses in the corners, leaving an open area of grass which looked larger than the original lawn, and giving unobstructed views of neighboring hills and mountains in three directions, and yet when the grounds were viewed from a neighboring hill they appeared to be as shady as they were before any improvements had been made. A berberry hedge along the street in front was left, so that the effect of an enclosed English "garden" was retained, while the apparent size of the grounds was doubled, as viewed from the street. A lawn mentioned by Jacob Riis in his "Making of an American," as "decorated" by cast-iron dogs, has recently had half its trees cut out, and yet those left are so scattered about the lawn that it impresses the observer with a sense of confinement, or crowding, while a neighbor's lawn, not two-thirds the size, is so planted that it appears much the larger of the two. Just beyond is a lawn cut in two by a row of hydrangeas and golden elders, so that from the street the house appears to be set in a small lawn back from the front, more retired and cut off from view than the New Hampshire one not so large, with its berberry hedge in front. The general effect is spoiled, as far as landscape beauty is concerned. Such instances re too common, and from them one may learn how not to do it.

TREES SHOULD BE IN HARMONY WITH SURROUNDINGS.

It makes little difference as to what trees and plants are used, provided they are so placed that they are in harmony with the surrounding conditions. But it is generally better, in order to secure satisfactory results in the long run, to use trees and shrubs native to the locality. The white spruce of Northern New York is quite sure to live to a much greater age, and to retain its symmetry, than the Norway spruce, which is generally used because it grows faster, costs less to propagate, so is cheaper at the outset. In 30 to 50 years the Norway spruce will begin to fail, while the native sort will scarcely have attained maturity of growth, and then it will retain its beauty another half century or more. In arranging the trees the largest (when full grown) are to form the background of the plantation, being careful not to plant so as to hide fine distant views in the future. Then, as far as color is concerned, the darkest foliage should be farthest from the viewpoint.

FLOWER BEDS.

The flower beds, if any, should generally be placed against the foundation walls of the house, or along the borders of the shrubbery. A small lawn will look large and wide if no shrubs or flower beds are cut into the expanse of turf, because the eye has no scale of measurement, while if two or three flower beds or mounds of cannas or bulbous flowering plants are set in the middle of the lawn, the ordinary eye easily estimates the distance between the beds and the border of the lawn, and so it looks limited. The more the beds or shrubs are multiplied, the smaller seems the lawn to the inexperienced eye. In all cases, whether at the first plant-

ing, or in making changes, the matter should be studied up from the front door steps, or from the most common point of view for the family, and the work must be so done that there shall be an unbroken expanse of green in the middle, with the trees and shrubs and flower borders around the outside, thus getting the biggest handsome picture possible under the circumstances. We do not want a haphazzard, inartistic dotting about of plants on our lawns, nor a Parisian rug, nor a set piece of mathematical patchwork. Neither, on the other hand, do we want a tangled wildwood. We want a solid background of dark green, with a scattered mass of lighter green flowering branches and the shrubbery nearer the eye as a stand or set in our favorite place at the house. If the neighboring lawns or fields are naturally or designedly beautiful, the boundary lines of the home grounds can be set sparsely with strips of grass between, so as to make the lawn seem to extend far away. But if the adjoining areas are unsightly or neglected, then the boundary should be set so thickly as to hide the nearby property, except where there is a fine distant scene, and then low shrubs can be made to hide the near undesirable spots. In all cases the arrangement should be as unartificial as possible, unless the buildings are large and architecturally ornate, when an artificial planting arrangement is proper and often desirable.—*D. A. A. Nichols, in Weekly Illustrated Buffalo Express.*

RUDBECKIA, GOLDEN GLOW.

IN the year 1898 I photographed a group of Golden Glow, Rudbeckia, and the picture is here reproduced. This species has now been widely disseminated, forming one of a trio of most excellent recent introductions, Hydrangea paniculata grandiflora and Clematis paniculata being the other two. It is a singular fact that they all bloom late in the season, when most needed, and are all of the easiest culture. Each requires an ample supply of moisture for the best results, and are perfectly hardy. Luckily they combine three divisions of plant life, the shrub, the perennial and the vine. Japan furnishes two of them and the western prairies the third, the Rudbeckia laciniata fl. pl.

We are all familiar with the black-eyed Susan, the Rudbeckia hirta of the botanists. R. laciniata is a near relative, and in its typical form somewhat resembles it, except that the disk flowers, those minute blooms covering the cone, are a dull greenish color, instead of yellow, and the whole flower larger.

FIG 2640, GOLDEN GLOW.

In the doubling up of the Golden Glow, these disk flowers have changed into ray flowers. The black-eyed Susan will thrive in dry soil, but the other being indigenous to the borders of swamps and low meadows, requires a fair amount of moisture. The origin of this double form is yet unsolved. About 1894 John Lewis Childs found it in his grounds among some unknown plants sent him by some of his customers. From it he increased the stock that has, in the main, reached the gardens of the United States and Europe.

While I bought three plants in the spring of 1896 from Mr. Childs, I had three given me in the fall of 1895 by Mr. Jensen, the superintendent of Humboldt Park, Chicago, who called it a double K[illegible]. Mr. Childs gave it the name Golden Glow, and I bought from him in order to compare it with those received from Mr. Jensen. They proved identical. Mr. Jensen had seen, in the fall of 1895, a large clump of it in the garden of a German in Chicago who had received it a year or so before from a relative, and traded some geraniums for a few roots. This traces it back to 1893 or 1894. At this later date it was blooming both in Mr. Child's place and in Chicago.

A writer in an English paper about a year ago claimed that it was introduced to English gardens nearly twenty years ago under the name R. laevigata. Mr. Falconer in an editorial note in Gardening dispels this illusion in a clear and forcible manner. The mere fact that a plant so attractive in all its parts, so hardy in constitution, so readily grown and rapidly increased, was unknown in this country until within the past few years, even in the largest collections and among the most intelligent professionals and amateurs, is evidence enough that it was not known in English gardens twenty years ago.

The group illustrated is composed of three plants obtained from Mr. Childs which were placed in their present position in the spring of 1896. Some young plants from the outside of the group have been taken away. The group is supported and protected from damage by the winds by an iron hoop four feet in diameter placed about four feet from the ground and fastened to four strong stakes set among the plants. This is put in place when the plants are some five feet high. The hoop—which is of round iron—is slipped over nearly all the plants. Enough of the outer row of stalks are left outside the hoop to hide it and the stakes; these are then distributed evenly along the hoop and tied loosely, allowing each stock three or four inches play. When a heavy rain, accompanied by winds, comes they are apt to become top heavy and may break. In such cases I run temporarily a heavy but soft string around the whole group, well up towards the top, and draw it in quite closely—thus bunching it as one would a sheaf of wheat. This is removed when the storm is over and the blooms dried off. In this way one stalk supports the other and damage is seldom done. It is such a striking ornamental group upon the lawn that it pays to devote some extra care to it. The drip from a lawn hose connection is carried under this group by tiles, thus affording it an extra amount of moisture. Where plants are not given enough water the blooms are much smaller.—*Gardening.*

BUDDING ROSES

ONE of the easiest and best ways to propagate roses is by budding. I have the Hermosa, and desiring to make more plants of the same kind, thought I would try budding it on the wild rose; having one near by, I inserted two buds of the Hermosa about the middle of July, and in about three weeks they measured ten inches in height, and had buds almost ready to expand; since then I have given them but little care and attention, but they still continue to bloom, and are in good condition for winter. Although I had never heard of any one budding the rose, my experiment proved a grand success.

The process of budding is the same as that of the peach, pear, apple, etc., which has been explained through the columns of this paper before, but for the benefit of new subscribers, or those who perhaps did not observe closely the process, I will give an explanation with illustrations.

Select a bud from the rose you wish to propagate, and cut about one-fourth of an inch above and below the bud, taking out an elliptical piece with a little wood beneath it, as shown in Fig. b.

For the stock, take any hardy or wild rose, cut a T-shaped incision through the bark near the roots (Fig. a), carefully raise the ends or bark of the incision and insert the bud; then wrap firmly above and below the bud with a strip of cloth about one-fourth of an inch in width, commencing at the bottom and passing above the bud, returning again and tying just below, covering all but the bud, as shown in Fig. c.

In about ten days after budding, if done in spring or early summer, unwrap it, and if the operation has been successful, which it is most sure to be if properly done, cut the old stock off about two inches above the bud; and when it has made a new shoot, tie it to this stump to make it grow straight.

If budding is done in August or later, rewrap in about ten days, and let the bud and stock alone until spring, then cut off the stock above the bud, and encourage growth. The bud will not start till the following spring, though its union with the stock can readily be distinguished by its plump and fresh appearance.

Buds of different roses, red, white, crimson, etc., may be inserted in a single stock, thereby producing a rose tree of many colors.

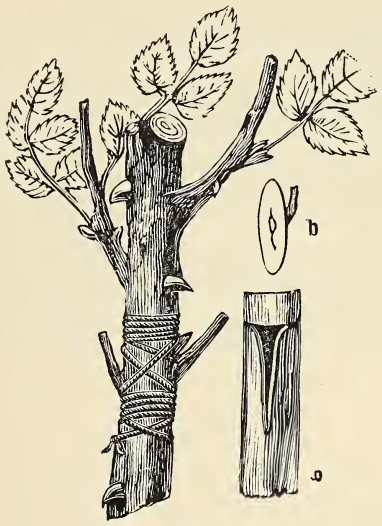


FIG. 2641.

It is not necessary to bud on the wild rose only, but if you have some other single rose you wish to improve, insert a bud or buds of some nice variety, and I think you will be pleased with the result.

Every lady reader should try this mode of propagating, for it is very simple, and easily done, and you can have a rose ready for bloom in the same length of time it would require a cutting to form roots.—*Farm and Fireside.*

The Canadian Horticulturist

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WELCOME HOME.

It has not yet been announced in the Horticulturist that the Editor has been absent for the past three months enjoying a honeymoon in Europe. We are pleased to state that after an enjoyable tour of the Old World, Mr. Woolverton is expected to return early next month, when he will resume his accustomed charge of our journal. It is not too late, on behalf of all the readers of the Horticulturist to wish its home-coming editor many years of personal prosperity and happiness, as well as added years of usefulness as its popular and efficient editor.

THE SPRUCE GALL LOUSE.

SIR,—Your attention has no doubt been directed to the fact that many spruce trees, widely used throughout the province for ornamental purposes, are dying. In some cases the limbs begin to die next the trunk and extending gradually out to the tip, and in other cases the outer portion of a limb will die first and then the trouble will gradually work inward till the limb is quite dead clear to the trunk. Certain limbs are attacked while many others remain quite green and healthy looking, but gradually limb after limb is attacked until the whole tree is destroyed, Is this caused by some insect pest, or what is its cause—and what is the remedy? I shall be very greatly obliged if you will favor me with any information which will enable me to save some fine, well grown trees on my front lawn, which are being attacked in the way I have described.

Oshawa. L. K M.

Answered by Prof. Wm. Lochhead, O. A. C., Guelph.

It is difficult to state definitely the exact cause of the dying of the spruce trees from the description, but I venture to suggest that the cause is the Spruce gall-louse. Mr. M. does not state a characteristic of the work of the gall-louse, namely the gall-like growth on the terminal twigs. The

insect, according to my observations, works on the outside, and not near the trunk. The terminal twigs will often curl from the effects of the unequal growth. In my experience also the limbs do not readily die for some time as far in as the trunk. With regard to treatment of the gall-louse, the infested twigs may be cut and burned about the first week in May, when there is a woolly secretion on the twigs containing many eggs. About ten days later a soap solution may be applied if the cutting has been neglected. These remedies can be used when the number of trees affected is small, and the size also small. When the trees are both numerous and large much can be done by spraying, but nature will often come to our assistance by sending along parasites, which will do more to keep the lice in subjection than all the sprays. We should be pleased to get samples of the dead twigs from Mr. M., for it may be that the gall-louse is not the cause of the trouble in his case.

WOOD ASHES FOR STRAWBERRIES.

SIR,—After clearing up my old strawberry plot would it be advisable to sprinkle unleached wood ashes over it? G. S. W.
Hawkesbury, Ont.

Answered by Prof. H. L. Hutt, O. A. C., Guelph.

You can seldom go astray in applying plenty of unleached wood ashes upon a strawberry plantation, or in fact upon any of the small fruits. The ashes furnish a large amount of potash and a lesser amount of phosphoric acid. The extent to which the soil requires these can only be determined by making experiments, but usually sandy soils are more or less deficient in potash, and it is upon such soils that ashes give the best results.

TEE COTTONY MAPLE SCALE.

SIR,—I send you a sample of something that is rapidly covering our maples. I, among others, would be pleased to learn the name and history of the pest. J. M. M.
Waterloo.

Answered by Prof. Wm. Lochhead, O. A. C., Guelph.

For some years this pest has not been destructive, but this season it seems to have gathered force, and is proving quite serious in some sections. Alarming reports come from Woodstock, and Waterloo is becoming anxious as to the effect this pest will have upon the maples.

This insect is quite conspicuous in early June on infested trees with its cottony secretion. This waxy substance is secreted by the female at the time the eggs are being deposited, and forms a protective covering for the eggs. At one end will be noticed the oval, brown scale, the remnant of the mother insect, for the insect belongs to the family of scale insects (Coccidæ), to which also belongs the terrible San Jose scale, about which much has been said, done, and written during the last few years.

The eggs laid by a single scale are very numerous, and begin to hatch about the end of June or the beginning of July. At this time swarms of minute lice may be seen crawling on the infested twigs. They soon fix themselves to the bark by inserting their beaks, and begin to suck the sap of the tree. In a short time the young begin to form scales of their own by secreting a waxy substance through certain pores on their body. In September they become adult. The males die before winter, but the females migrate from the leaves to the twigs, where they remain all winter. In spring the females grow rapidly, and the eggs are laid, as already described, in the cottony sack in June.

With regard to remedies, it may be said that whenever a few of the cottony sacs appear the best plan is to cut off and burn the infested twigs, for by doing so the thousands of eggs will be destroyed.

However, when, by reason of numbers, this operation becomes impracticable, resort must be had to spraying solutions. Kerosene emulsion and whale oil soap solutions are perhaps the most effective. The standard kerosene emulsion should be diluted with ten parts of water if used alone. Some authorities recommend the use of the mixture—the standard emulsion is diluted with one pound of fish oil dissolved in ten gallons of water.

The best time to apply the mixture is about the first or second week in July, when the young lice emerge from the eggs. They are then easily killed. Winter or fall treatment is also valuable. The same substance may be used, but the solutions should be stronger than those used in summer.

In some cities where the cottony scale made its appearance good results were secured by applying a strong stream of water against the cottony sacs when they contained the eggs, and before these hatched.

By reason of the abundance of parasites this pest is seldom troublesome more than two seasons.

PROPAGATING CLEMATIS.

SIR,—I have a thrifty Clematis Jackmanii. Can I propagate it by layering, and when would be the best time? G. S. W.
Hawkesbury, Ont.

Answered by Prof. H. L. Hutt, O. A. C., Guelph.

The Clematis can be readily propagated by layering the young shoots any time now after the wood has become somewhat mature. The new vines should be covered with a couple of inches of rich earth and should be kept moist until the roots have formed.

Our Book Table.

PROCEEDINGS OF THE NEW JERSEY HORTICULTURAL SOCIETY FOR 1903.—A verbatim report of 265 pages of the 28th annual session of that society held in January of this year. This report contains much valuable information, given in the form of questions and answers, and the promptness with which it is published makes it of additional value to those interested.

THE 28TH ANNUAL REPORT OF THE ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM FOR 1902.—This report is made up of seventeen parts, written by the heads of the various departments, and contains valuable information on a wide range of subjects. Probably that of most interest to our readers will be found in the Report of the Biologist and Horticulturist. A copy of this report can be obtained by applying to the Department of Agriculture, Toronto.

THE WOODLOT, A HANDBOOK FOR THE OWNERS OF WOODLANDS IN SOUTHERN NEW ENGLAND. (Bulletin No. 42, Bureau of Forestry, U. S. Department of Agriculture.) This is another of those valuable publications on forestry which the U. S. Department of Agriculture sends free to those interested in the care of private woodlands. The purpose of the bulletin is to show how second growth woods should be treated in order to yield larger returns in the long run than is possible under other methods. Thirty full page diagrams are given, showing examples of typical cuttings in thinning timber.

THE NINTH ANNUAL REPORT OF THE FRUIT EXPERIMENT STATIONS OF ONTARIO.—To those interested in fruit growing in Ontario this is one of the most valuable reports published. It contains reports from fourteen fruit experiment stations, in as many different parts of the province, on all classes of fruits grown in the country. Careful notes are given on varieties new and old, and many of the newer ones are shown in beautiful photographic illustrations. This report can be obtained free upon application to the Department of Agriculture, Toronto.

LECTURES ON FORESTRY, BY B. E. FERNOW, LL.D. —This is a little booklet of 86 large pages, containing the ten lectures on forestry delivered by Dr. Fernow at the Kingston School of Mining last winter. The lectures are excellent, and cover in a general way the whole subject of forestry. It is also well illustrated and is well worth the price at which it is offered, 25c. The writer of the introduction, however, makes a mistake in trying to give Queen's University the credit for thus being the first to make a beginning in Forestry education in Canada. He probably was not aware that forestry has been regularly taught at the Ontario Agricultural College for the past twenty years.

FIG. 2642. CHENANGO.

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CANADIAN HORTICULTURIST

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VOLUME XXVI NUMBER 9

CHENANGO

(CHENANGO STRAWBERRY, SHERWOOD'S FAVORITE.)

BY THE EDITOR.

MANY years ago, when a boy visiting his grandfather's farm on the banks of the Chenango river, at Earlville, Chenango Co., N.Y., the writer remembers being shown an old tree, laden with apples, which the old gentleman called Chenango and of which he was very proud, counting it the finest eating apple in his whole orchard. We little thought then that one day we would be very much interested in knowing the history of the apple, or how near we were to the town of Lebanon, N. Y., the place of its origin.

Of late years this apple has been coming to the front in Ontario, and has recently been placed upon the model prize list issued under the authority of the Department of Agriculture as being worthy of cultivation, and good samples may be seen every year on the fruit tables of the Industrial Exhibition. Our Russian friend, the late Jaroslav Niemetz, horticulturist of the college at Rovno, Wolinia, on the occasion of his recent visit to Canada, accompanied the writer to the Industrial Fair with an especial eye to study the fruit exhibit, and no variety on the tables seemed to interest him so much as the Chenango. He took careful notes of its characteristics and requested us to send him scions that he might propagate it in his country.

The apple is certainly a fine dessert apple for use in September and October, for it is beautiful in appearance and very agreeable to the taste. The flesh is creamy white in color, and, in texture, tender and moderately juicy, while the flavor is spicy and agreeable. The exterior is a delicate whitish ground, on which the light and dark shades and stripes of red show up beautifully.

The tree is fairly vigorous and productive, and has the special merit of being resistant to that plague of the apple grower, the apple scab, from which both its foliage and its fruit are free.

We do not advise the planting of this apple in the commercial orchards of Ontario, because it has too tender a flesh to be a good shipper, and we have other September apples which would probably give more certain returns; but for the home garden, to which, unfortunately, many people attach too little importance, a tree or two of the Chenango is very desirable.

Editorial Notes and Comments

THE NOVA SCOTIA APPLE CROP.

IN a letter to the Fruit Division, Ottawa, Mr. J. W. Bigelow, of Wolfville, N. S., gives the following estimate of this season's apple crop in Nova Scotia: According to present prospects there will be a full crop of superior apples, giving over 400,000 barrels for export. Varieties are about as follows: Nonpareil, 60,000 barrels; King, 50,000; Gravenstein, 50,000; Ribston Pippin, 40,000; Golden Russet, 30,000; Baldwin, 60,000; Rhode Island, Greening, 30,000; all other varieties, 80,000.

APPLES VS. STRAWBERRIES IN ENGLAND.

THE folly of keeping Canadian apples until late in the spring with the hope of selling them for export at an increased profit is shown by a recent report to the Fruit Division, Ottawa, by Mr. A. W. Grindley, one of the agents of the Department of Agriculture in Great Britain. Mr. Grindley says: "Prof. Waugh, of the Massachusetts Agricultural Experimental Station, and myself, were looking at some States apples in barrels, arrived 29th June in cold storage. They were soft when discharged, and did not bring much, as they will go off very quickly; besides, who wants poor apples when the market is swamped with English strawberries at their best."

A SHORT FRUIT CROP IN EUROPE.

THE Fruit Division, Ottawa, has received from several of its correspondents in Europe reports showing that the fruit crop is a small one this year, and indicating that there will be an unusually good market for Canadian apples and pears. The Glasgow Herald says: "Apples will be scarce, the destruction by spring frosts having been serious and extensive. If growers get half a crop on an average they will do well. The prospect, however, varies considerably. In some parts of Kent the trees carry excellent crops; in others hardly any. The same condition of things prevails in Herefordshire, whence the Midland counties are so freely supplied with choice dessert apples. In Cambridgeshire the crop is disappointing, although in parts of that county a fair harvest of apples will be gathered. Many growers will be satisfied if they get a quarter of a crop. Pears have suffered from the spring frosts equally with apples. In some counties the yield will be meagre; in others the crop is a complete failure. Only a third of a crop under the most favorable conditions is looked for."

E. A. O'Kelly & Co., of London, say: "We are glad to state that prospects are very favorable this year for the importation of Canadian fruit, as crops throughout Europe are a total failure. We anticipate that prices will be satisfactory all round for apples."

From Hamburg, Germany, Edward Jacobs & Sons report: "The fruit crop in Europe is this year, generally speaking, short. Should there be no duty on apples the prospects for Canadian are very promising."

Garcia, Jacobs & Co., of London, state: "There has been an almost total failure here of plums and pears, and this year there will be a good opportunity for the shipment of Canadian pears. The latter should be packed in cases similar to those sent from California. That there is a fair crop of early variety apples is a certainty, but they will all be cleared off the market before your fruit is ready for shipment. France, Belgium and Germany are large growers of

apples, and the crop this season is fairly large, but the quality is so poor that they can never really compete with Canadian fruit."

FRUIT GROWING IN THE NORTH.

IN conversation with Mr. Charles Young, our experimenter on St. Joseph's Island, Algoma, a short time ago, he remarked that "One of the ideas which the settlers of Northern Ontario must free their minds of is that fruit cannot be grown in this northern district." The crops of strawberries, raspberries, currants, cherries, plums and apples which he is growing certainly prove that in this part of Algoma, at least, the settler need never be without an abundance of fruit for home use, and in many cases profitably grow it for the ever increasing market at the north.

"The reason," said he, "that so many have failed in their first attempt is because they planted the same old varieties they had been used to in older Ontario."

Mr. Young has about seventy-five varieties of apples under test, and mentioned he following as a few of those he had found the most satisfactory: Duchess, Wealthy, Transparent, Longfield, Gideon, Charlemoff and Alexander. In Southern Ontario these would be counted as only summer and fall varieties, but they are not so here, for Algoma grown Duchess keep till winter, while Wealthy, in any good cellar, keeps in good condition till February.

NORTHERN ORCHARD ENEMIES.

TWO of the worst enemies the northern apple grower has had to contend with have been sun-scald and borers. The latter breed in great numbers in the forest trees, but take the apple tree by preference when they can get them. Sun-scald is a trouble peculiar to the northern and western districts, and is supposed to be caused by the alternate freezing and thawing of the cambium layer. It shows itself usually on the south and west side of the trunk in dead patches of bark. Trees badly affected seldom recover. The best way of avoiding it is by the selection of hardy varieties, growing low headed trees, and shading the trunk in the winter with a board, corn stalks or other material.

SOUTHERN ENEMIES UNKNOWN IN ALGOMA.

WE have heard it stated that the codling moth and curculio were as yet unknown in Algoma and Muskoka, but were a little doubtful about the truth of the statement. When, however, we find wide awake, observing fruit growers like Charles Young, of Richards Landing, and Arkin Eddy, of Hilton, who have been growing fruit on St. Joseph's Island for over twenty years, and who say that they have never yet seen either of these insects on the island, we must believe that the "Little Turk" and the other afore mentioned barbarian have not yet found this garden spot of the north.

PROFITABLE STRAWBERRIES.

PROBABLY in no part of Ontario can berries be more successfully and more profitably grown than in the north. In the first place the soil is as fertile as could be desired; then too, the snow covers the vines from the beginning to the end of winter, so that no other protection is necessary. The frequent showers afford all the moisture that is needed to bring the berries to a large size without the aid of a summer mulch, and to cap it all the grower can, as a rule, get the top price for all the fruit he can produce. As an example of what can be done, we need only mention that Chas. Young at Richard's Landing, has done this summer. From a patch of not more than a quarter of an acre he cleared over $200, all of his berries selling right at home for 10 cents per box.

BLACKBERRIES AT CRAIGHURST.

IT has generally been supposed that the blackberry could not be successfully grown much outside of the peach growing sections. With the introduction of hardier varieties, however, it seems that the area over which this fruit may be grown may be greatly extended. No better proof of this could be furnished than the sight of such a plantation as we saw last month at Mr. G. C. Caston's at Craighurst, in Simcoe county. The crop on his Agawam and Eldorado bushes was, without exception, the finest we ever saw.

JULY FRUIT CROP REPORT.

A BULLETIN from the Fruit Division, Ottawa, dated August 7th, gives the following report on the fruit crop:

Weather conditions, on the whole, have been favorable for July, and hence there is no marked change since the June report.

Winter apples will be a full crop in Nova Scotia, medium to full crop in Southern Ontario, Georgian Bay and Lake Ontario districts. In Eastern Ontario and Quebec the crop is light.

Early apples are a medium to full crop everywhere except in Quebec.

Pears will be a light crop except in parts of Southern Ontario and Nova Scotia.

Plums are a medium to full crop in all plum growing sections, with not more than the usual amount of rot.

Peaches promise well in Essex and the Niagara peninsula.

Grapes are a medium crop, except in Essex and Kent, where they are almost a complete failure.

THE SCARCITY OF FRUIT IN EUROPE.

ADDITIONAL evidence of the scarcity of fruit in Europe is furnished by a recent letter from Thos. Russell, fruit broker, Glasgow, to Mr. W. A. McKinnon, chief of the Fruit Division, Ottawa. Mr. Russell says: "The apple crop in England, Ireland and Scotland is a very poor one, while on the continent there is also a very light crop. So far as Glasgow is concerned we shall have to depend entirely on supplies of apples from America and Canada. Pears and plums are also scarce in England, and altogether there is every prospect of a good demand for American and Canadian apples, as there is practically nothing else to come against them this season."

APPLE PACKERS SHOULD BE NUMBERED.

THE Fruit Division, Ottawa, has received from a leading exporter a letter suggesting that a slip be printed in large letters and placed in the top of each package of fruit, as follows:

"You are requested to report any fault you may find in this package to ..... Montreal, Canada.

Packed by No....."

This suggestion is right in line with the recommendation of the Fruit Division, that each "boss packer" be given a number, and that this number be stencilled on every package of fruit put up by that packer. In putting up apples in the orchard the number should be marked in pencil near the chime of the barrel, and the branding done later. Mr. McKinnon's forthcoming bulletin on the Export Apple Trade will deal with this question, and the Fruit Division will show at Toronto Exhibition a model brand for apple barrels.

The plan of placing a slip with the packer's number in each package has been largely used by tobacco and other dealers, and has proved a safeguard to the wholesaler or exporter. For instance, it has been found in previous years by apple exporters that barrels bearing their brand and marked as put up by a certain boss packer, say No. 60, were in great demand, while goods similarly branded, except that they were marked

as put up by another packer, say No. 48, were not wanted. This difference in the quality of th efruit may have been due to inferior packing, or to the fact that the second packer was working in an inferior district, but in any case the advantage to the exporter of having a check on the work of his packers is quite apparent.

FRUIT MEETINGS IN BRITISH COLUMBIA.

FRUIT growers in Eastern Canada will be interested in knowing that their brethren in British Columbia are fully awake to the importance of up-to-date methods in connection with their business, and that they ever hope to capture the whole of the trade with Manitoba and the Territories. During the month of July the executive committee of the British Columbia Fruit Growers' Association, accompanied by Mr. Maxwell Smith, Dominion Fruit Inspector, made a tour of the Okanagan country, where several successful public meetings were held. Visits were also made to a number of orchards at Vernon, Kelowna and Summerland, and much valuable instruction was given and information obtained *re* the planting and marketing of fruit.

At the meetings Mr. J. C. Metcalfe, of Hammond, president of the association, gave a resume of the work of the association, describing its aims and objects, emphasizing the necessity of co-operation among the fruit growers of the province, careful selection and honest packing of the fruit, and strict attention to every detail of the business, in order to obtain profitable returns. He called attention to the fact that at the present time British Columbia was supplying only 20 per cent. of the fruit shipped into the Northwest.

At Armstrong Mr. R. M. Palmer, who attended the Ontario Fruit Growers' meeting at Walkerton last winter, told of the sensation caused by the British Columbia fruit shown there. He said that Manitoba and the Northwest Territories were British Columbia's natural markets, and as British Columbia fruit had already made a good impression there they could in time gain control of that field, if only first class fruit were shipped. Oregon and Washington were now shipping apples to Britain at a profit, and the British market would always be open to the British Columbia fruit grower. He claimed that they had suffered much from inferior nursery stock, and strongly recommended the growing of their own trees, which could be done for one-third of the present cost. He discouraged experimenting with new varieties, and advised planting varieties that had already earned a reputation, and that were suited to local conditions.

Inspector Smith at each meeting explained the provisions of the Fruit Marks Act, and pointed out that all that was necessary to enable any intelligent person to pack his fruit in accordance with its requirements was the possession of a copy of the act and the exercise of care, perseverance, honesty of purpose and common sense. He also urged co-operation in marketing in order to obtain the best results, and pointed out the possibilities of a large trade being established in Japan in canned fruit and pure fruit jam.

At Salmon, Ara., Mr. T. W. Stirling, of Kelowna, mentioned that when he had only two tons of fruit he had great difficulty in selling it, when he had two cars it was easier, when he had twenty cars it sold readily, and when he had thirty-five cars he could not supply the demand; so there was no danger of over-production of British Columbia fruit.

PROSPECTS OF PLUM GROWERS.

THE prices ruling at the present time in Ontario for plums is certainly discouraging to the grower. To-day,

August 20th, we sold fifty baskets of beautiful Burbanks at 15 cents each, while even our Bradshaw and Washington are only worth from 30 to 40 cents.

Mr. A. Rogers, of Sparta, has a plum orchard of 700 trees, but between the rot and the low prices he says he has no satisfaction with it. Indeed, he has decided to root ut all except about two hundred Reine Claude and a small block of specimen varieties.

Mr. A. H. Pettit, of Grimsby, thinks Ontario plum growers should not be too much cast down by present low prices, because the great Northwest will require these and many other of our finest fruits, so soon as efficient cold storage cars are provided. "I have just returned from a tour in Southern Manitoba," said he, "and I am told out there that they want all our finest fruit—the best we can grow—and for this they are willing to pay almost any price; but our poor fruit they do not want at all."

Mr. Henry Lutz, a well known New York state fruit grower, who lives near Youngstown, says the low price of the Burbank is due to bad handling; it is almost invariably gathered in too green a stage, and is, therefore, not appreciated in our markets—indeed, this practice is spoiling the markets for Japan plums. The Burbank should not be placed upon the market until it is fully ripe, and if this hint is carefully observed these plums will be much more sought after.

As for our European plums, Mr. Pettit declares they are far superior in flavor to those grown in British Columbia, so that in spite of the advantage that country has over us in first capturing those Northwestern markets, there is still hope that we shall win it back by reason of the superior flavor of our fruit.

THE DRY BORDEAUX.

MR. LUTZ has been trying the dry powder spray and is much pleased with it. When applied in a very fine dry powder he finds that it clings to the tree very well indeed, and is pleasanter to handle than the liquid. The American Agriculturist says:

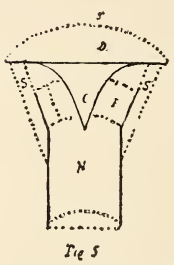


FIG. 2463. DUST NOZZLE.

Dry powders are put on with a blow gun or dust sprayer, and several are on the market. An improvement on the ordinary nozzle, which distributes the powder in a solid stream, has been perfected by the Missouri experimental station, and is shown in Fig. 2643, which represents a cross section. Fig. 2644, which is 2⅜ times *d* of Fig. 2643, is a pattern for cutting the tin which, when folded, forms the deflective cone C of

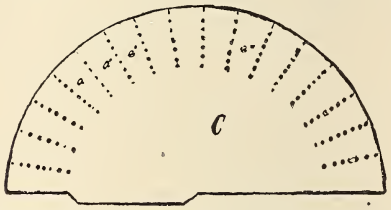


FIG. 2464. PATTERN FOR CUTTING CONE DEFLECTOR.

Fig. 2643. Cut along the dotted lines, and after bending to form a cone solder it together; curve the pieces as upward.

Solder the cone to the circular piece of tin D, and connect the whole to the nozzle of the machine by narrow strips of tin SS, turned edgewise to the opening. This nozzle N fits over the straight nozzle furnished with most of the machines. In Fig. 2643 D is 2½ times the diameter of *d*, which is the outside diameter of the nozzle furnished with the machine.

A GOOD PEACH COUNTRY.

MR. A. ROGERS, of Sparta, says that the section of country between Aylmer and Lake Erie is well adapted for peach growing. The soil is a black loam with a clay subsoil, on which both large and

small fruits succeed well, especially the peach. He has 50 acres largely in fruit, and grows Clyde and Williams strawberries with great success. Mr. Cohoon, near Port Burwell, has 1,500 peach trees in his orchard, while Dr. Marlatt, near Aylmer, has an orchard of about 1,000.

A DEFINITION OF NO. 2 APPLES.

AT the recent meeting of the International apple shippers at Niagara Falls, the following definition of what should constitute No. 2 grade of apples was adopted: "No. 2 apples shall be hand-picked from the tree; shall not be smaller than 2¼ inches in diameter, and of fair color for the variety. The skin must not be broken or the apple bruised, and practically free from scab and other defects. This grade must be faced and packed with as much care as No. 1 fruit."

THE APPLE CROP PROSPECT IN AUGUST.

AT the same convention a report was made showing the size of the crop in the United States and Canada, compared with that actually produced last year. Large percentages were given for Nova Scotia, Virginia, Maryland and Pennsylvania, indicating an excellent crop, where a very short crop or failure existed last year. "The crop in New England, New York and Ontario last year, while large, was of such poor quality that the percentage of No. 1 apples was very small. This year, although the crop is lighter, the prospective quality of the apples is much better, and with Pennsylvania, Maryland, Virginia, West Virginia, Nova Scotia and Pacific coast states more than offsets the small crop and poor quality in the middle west and other states."

ENGLAND A POOR FRUIT GROWING COUNTRY.

WHEN one travels throughout Great Britain he is no longer surprised at the immense quantity of foreign fruit that is annually imported, nor at the high prices often paid for high grade stock. The climate is so cool in summer, and so often damp from rain or fog, that the fruit does not take on a high color, nor does it ever attain that delicious flavor for which our Canadian apples are famous. The trees themselves are sickly and stunted in growth so that they are not capable of proproducing a very large yield of fruit. We were surprised when visiting the orchards to see the apple trees almost completely covered with moss, and no attempts made to clean the trunks. One beautiful Cordon apple walled in garden at Melrose was so covered with lichens and mosses that the wood was completely hidden and the tree much stunted in growth. We suggested to the gardener that a scraping and an application of some alkaline wash might help to cleanse the bark and give fresh vigor to the tree; but English conservatism ruled and the gardener said he did not have much confidence in such treatment and seemed to think it scarcely worthy of trial.

THE ENGLISH FRUIT CROP A FAILURE.

AFTER an extended tour among the fruit growers of Great Britain, we have come to the conclusion that the present season is a favorable one for the export of our choice apples and pears. A spring frost of unusual severity played sad havoc with all fruit crops. Not only were tender fruits like cherries almost completely cut off, but even pears and apples were blackened and fell from the trees, leaving scarcely enough to pay for gathering. There is, therefore, an unusually good opening in Great Britain for our early apples and pears, with which the English grown apples usually come into strong competition.

In regard to our winter apples, these are never much affected by the English crop.

and the price is practically proportioned to the American and continental crops. Always, however, there is a strong demand for our superb Canadian high colored crisp winter apples, such as King, Baldwin and Spy, because there are no apples grown anywhere which can compare with them.

Our own observations are backed up by letters just received from English fruit merchants, from which we cull some sentences. For example, Mr. J. B. Thomas, Covent Garden market, London, writes:

I desire specially to inform you that our market is ready to receive your early varieties of apples, and any that you think will stand the voyage will pay to ship to this market.

I think the present exceptionally favorable to try shipments of pears (best varieties) and selected peaches. Both should be gathered directly they have fully developed in size and packed with paper around each fruit in boxes of single layers. The selecting and packing must be done from the tree and at the tree side, i. e., no second handling of the fruit should take place. Such shipments made in steamers fitted with refrigerating chambers from Montreal should give satisfactory results to shippers this season.

Mr. Thomas Webster, of the Manchester Fruit Brokers, writes:

The outlook here for Canadian pears and apples is decidedly favorable because our own crop is very small this time, and there will be a great scarcity to fill up. You will remember that last year your Bartlett pears arrived in bad condition owing to having been packed too ripe, and no doubt will avoid this when you ship again. The Clapp pears did well, and we recommend you to ship liberally of this quality again. Apples such as early Astrachan and Duchess will be wanted, and if carefully packed will show good results.

In packing pears tell your people to always line the boxes top and bottom with excelsior. Last year, in some instances, the lids were nailed down on the bare fruit, and its appearance was completely spoiled.

Mr. B. W. Potter, of Manchester, writes:

The crop of English fruit is an entire failure, and we shall have to depend for our supplies largely upon Canada.

Messrs. Woodall & Co., of Liverpool, write:

The following table, showing in broad general terms the number of reports which have reached us, in which the crop is classed as "over average," "average," "under average;" and "good," "very good," or "bad," indicate the quality. These figures must of course be taken as indicating approximate truth, and not strict mathematical accuracy, which would be unattainable in this case; they may, however, be taken as substantially correct:

	Over Average.	Average.	Under Average
This year..	2	17	248 reports
Against last year ..	12	98	184 "
" 1901	15	90	163 "
" 1900	148	138	16 "

Messrs. James Adams & Son, of Liverpool, write:

Owing to the exceedingly cold spring the fruit crop throughout Great Britain has suffered considerably, and while apples in some orchards may be a fair yield, the crop as a whole will be very short indeed. In some parts of the continent the same climatic conditions were apparently experienced, but fruit all the same is more plentiful there than in this country, and in both Holland and Germany we are given to understand there will be a fair crop. This, to some extent, is a factor that must be borne in mind when indicating the outlook for American and Canadian stock, but as we have before explained the competition offered by continental growths is, after all, not very important. From present aspects it would appear as if apples from America and Canada would be wanted more than ever this season—not only "winters," but "falls" as well—and it is for shippers themselves to say whether the season shall be a satisfactory one or otherwise. When prospects are favorable there is, unfortunately, a tendency on the part of operators to "overdo the thing"—that is by sending forward too many, and not paying sufficient care to the grading and packing of the fruit. We have emphasized the fact repeatedly—that poor apples never sell well, even in a short season—and apart altogether from the inspection of the government officials under the Canadian Marks Act, we do hope that efforts will be directed to the sending forward of good and honestly packed stock only. As is well known, it is quite impossible to form any accurate idea as to how prices will rule, but if shipments are not too heavy then we can safely say that fair values will be obtained.

Here, then, is an encouragement for our fruit growers to take advantage of their opportunity and pack their finest fruit for export.

DO NOT SHIP RUBBISH.

UNFORTUNATELY this season there is a great quantity of second class apples, especially of Kings, Baldwins and Greenings. They are under size and scabby, and such stock should not be exported; it should be sold in near markets if sold at

all. But that prince of Canadian apples, the Spy, which was a failure last year, is this year large and clean, and will be a most valuable export apple.

BOXING CHOICE APPLES.

JUST now it is quite a fad with horticultural journals to eulogize the box packing for apples as far better than the barrel, and we fear many will be misled by the advice. The box is all right for extra choice stock, and for that only; but, if growers generally were to adopt it, and pack into it all classes of apples, it would be a serious mistake. Ordinary stock sells for most money in a large package, such as the barrel, and it is only the fancy stock that brings more money in a small package. We have been using the bushel box for years for choice high colored Spy and King apples; and, while we have in some cases received exceptionally high prices, our sales have at other times been very disappointing. so that on the whole, counting the extra cost of assorting, grading, sizing and wrapping in tissue paper, we are not so very much ahead. Still, we shall persevere in putting up fancy stock in boxes, and have just ordered 2,000 for the season of 1903.

SIZES OF BOXES.

UNFORTUNATELY for the trade. Canadian fruit growers have not yet agreed upon a uniform sized box for apples, and various sizes have been under experiment. In our early shipments we used a box with eight strong trays, which proved much too cumbersome and expensive. Then for apples we used a plain box, measuring 2 feet x 1 x 1, holding a good heaping bushel. But finding that the Tasmania apples come to the English market in a box holding about forty pounds, we have adopted a box holding nearly the same quantity, but much more neatly made. The dimensions of this box are 9 x 12 x 18. This size was recommended by a committee of our association at Walkerton last December as worthy of general trial during the year 1903, after which we will be in a better position to decide upon a permanent one.

PROSPECTS OF A FRENCH MARKET FOR OUR APPLES.

WHEN in Covent Garden market, London, England, we were informed by Mr. Garcia that a large part of his immense apple sales were made to French customers, and so important was this feature of his trade that he was now arranging to have a special branch of the firm of Garcia, Jacob & Co. opened in the city of Paris. No doubt the exhibit of Canadian fruit made at the Paris exposition has created a market for our finer fruits, which we ought not to let pass into other hands. We have just received a letter, first addressed to Mr. R. W. Shepherd, of Montreal, which emphasises the importance of the present opportunity. It comes from Mr. Anatole Poindron, Canadian commercial agent at Paris, who says that Mr. Barbier, 3 and 5 Rue Gombourt, Paris, is the largest importer of fine table fruits in Paris, for which excellent prices are obtainable. "In fact," says he, "color, quality, size and perfect appearance are more in question than cheapness."

THE TREE PROTECTOR.

THE Daily Telegraph, Berlin, has the following article on The Tree Protector, which has been widely sold to fruit men during the past few years. We shall be glad to hear from others who have given it a trial:

Various inventions have been put on the market during the past few years for the protection of fruit while growing upon the trees. A device, consisting of a piece of galvanized sheet iron several inches wide, lined with felt, and saturated with some sort of insecticide has come into general use in many sections of the country. This piece of iron is cut the proper length to encircle the trunk of the tree, the

felt lining being placed next to the trunk. The iron circle thus placed is provided with a coil spring which is calculated to keep the felt lining sufficiently close to the tree to prevent insects or worms climbing the trunk and getting at the blossoms or growing fruit. Mr. Wm. Hendry, of Berlin, invested $8.00 in these devices some time ago. His trees, however, during last summer, showed unmistakable signs of bad health, and this spring a number of his best plum trees are dead. Mr. Hendry never suspected that the insecticide rim was the cause of his trees going wrong until lately, when he found that wherever one of these rims had been placed around a tree the bark was dead, or nearly so. This is a matter of grave importance to fruit growers, wherever this device has been used, and if the general experience be the same as Mr. Hendry's the loss will be heavy, as large numbers of these rims are in use.

In view of these facts it would be wise for all persons having these rims in use to inspect their trees and see whether they are being injured. It is well for everyone to know that the application of any kind of sticky or gummy substance around the trunk of a tree is injurious and liable to kill it.

THE NEW PEACH DISEASE.

THERE seems to be no end to the troubles that beset the fruit grower, and one of those that has lately taken hold of the peach trees is known by the rather strange name, "Little Peach." It has doubtless been gradually spreading for a good many years, but has only attracted attention within the last two or more years, and in the western part of Michigan, principally.

The principal symptom is the stoppage or failure of the fruit in its growth in the early part of the summer; and when this once takes place there is almost no further development. These little peaches are scattered over the tree, and often on the same branches with those of normal size. It does not seem to occur or take effect equally on all varieties nor to be worse on feeble tahn on thrifty trees. However, there are other causes for the fruit not developing properly, such as poor soil or lack of tillage, and it is often difficult or impossible to detect the true Little Peach disease from such troubles. In all of them the fruit is more fuzzy than is normal and under sized, but where there are peaches of both normal and abnormal sizes it is wise to watch for further ailment.

There is a gradual turning of the leaves to a bronzy color and a slight curling. Gradually the tree dwindles, in spite of manuring and the best of treatment and finally dies. All ages and sizes of trees are affected, and the spread is very rapid. The disease breaks out very suddenly, and often in orchards where there is no evident means of infection.

The true cause is yet a mystery. Some think it is the effect of a fungus on the roots while other scientific experts say that this is a mistake and that it is safe to plant new trees where others have died from the disease.

As to remedy there seems to be none but the axe. This often takes the whole or greater part of thehard. There should be no dallying. It may be that something more may be learned of the cause and cure, but it may result as with the other dread peach disease, the yellows.—*Vick's Family Magazine.*

A WORD ABOUT APPLES

BY

T. H. RACE, MITCHELL.

MR. EDWARD TYRRELL, in his contribution to the Horticulturist last month, pointed out the advantage one has in this world by a good use of his eyes and brains. By the use of my eyes, in running over the province last spring I observed what a general lack of interest there was in the care of the apple orchard; and, comparatively speaking, what a very few new orchards were being set out. By the use of my brains I reasoned that if this state of things continued for a few years longer the supply of good fruit must fall much below the rapidly increasing demand. By a similar use of my eyes I observed but two exceptions to this state of things in all my travels. The first was in the district of Cobourg, Brighton and Colborne, and the second in a stretch of country lying between Wellington and Picton in Prince Edward county. By the use of my brains again I reasoned that the orchards in these districts must be paying the owners or they would not be receiving so much care, and, if they returned a profit for the care they got, orchards in other districts under similar treatment, must also prove profitable. I noticed further, that in these two districts named a large number of young apple trees were being set out and all apparently well cared for. This fact, to my mind, emphasised two things; first, that apples were now grown with a profit, and secondly, that the growers had faith in the future for the apple trade.

Looking at the subject prospectively, there can be no other conclusion than that the demand for apples must increase. With the thousands of settlers rushing into ur northern districts, where fruit can never be much grown; with the prospects of new railroads opening up these newly settled districts and providing them with better transportation facilities; with the advantages to be gained through our Fruit Marks Act and the greater demand for our apples in Europe, where is the pessimist to say that the future is not hopeful? I will venture to say that he cannot be found in the Northumberland and Prince Edward county districts.

Mr. Alex. McNeill, while talking to the people at Orillia, urged that a commercial orchard should consist of not less than four or five acres. Nothing less than this, he said, would be sufficient to command the farmer's attention, and nothing less would warrant the expense of an outfit necessary for the proper care of both soil and trees. The points were well taken, especially applied to sections where profitable apple growing has not yet been demonstrated. But in the district about Cobourg and Brighton I noticed many small plots of apple trees, scattered here and there, and all were well cared for. Every householder, in fact, seemed to regard his two or three apple trees as a source of profit, and I was informed that there were more young trees being planted out in the county of Northumberland than in all the rest of the province. I do not know what the Picton people would say to this, but, excepting the Prince Edward county district, I am quite prepared to accept the statement.

I had no opportunity to talk with any of the owners of the newly planted acres in Prince Edward county, but a resident of the Colborne district said to me: "We

have no fear of over-planting about here: there is a demand at good paying prices for all the good apples that we can grow right here at the packing houses." "What is demanded is good fruit," he continued, "and good fruit cannot be grown without proper care of the orchard, and that is why every man about here cares for his orchard, or what few trees he has. about here." Asked if everybody sprayed his trees, he replied: "Yes, if he has but two trees he has them sprayed by arrangement with some neighbor, and nobody keeps a tree on his premises that is not worth spraying for its fruit; he either cuts it out or has it grafted." This is a very different story from that told us by Dr. Mills at Walkerton of his experiences down among the orchards in the far-famed Niagara district, where the said orchards were mostly neglected and the dead trees still left standing. It shows, at least, the profitable results of care, and also the faith that the prudent grower has in the future outlook for the apple trade.

THE APPLE AS FOOD.

THE apple is the most valuable of all our native fruits, being richest in sugar and albumen. The juciest are the most digestible, but the mealiest are the more nutritious. Thoroughly masticated, digestion begins immediately, but some people cannot eat them uncooked as a dessert. The apple contains more phosphorus than any other fruit or vegetable. A Brooklyn physician, translating from a German writer, thus discourses on apples as food and medicine:

"The apple is such a common fruit that few persons are familiar with its remarkably efficacious medicinal properties. Everybody ought to know that the very best thing they can do is to eat apples just before going to bed. The apple is excellent brain food, because it has more phosphoric acid, in an easily digestible shape, than any other fruit known. It excites the action of the liver, promotes sound and healthy sleep, and thoroughly disinfects the mouth. It also agglutinates the surplus acids of the stomach, helps the kidney secretions, and prevents calculus growth, while it obviates indigestion and is one of the best preventatives of diseases of the throat. Next to lemon and orange, it is also the best antidote for the thirst and craving of persons addicted to the alcohol and opium habit."

STRAWBERRIES AT THE O. A. C., GUELPH, 1903.

DURING the past summer eighty-eight standard varieties of strawberries were fruited at the college. This number includes the best out of nearly 400 kinds which have been tested during he past eight years, and a number of new ones.

Some of the most desirable early berries, taken in order of ripening, are: Van Deman, Anna Kennedy and Splendid. Van Deman is a bisexual or perfect blossomed variety, a fairly vigorous grower, with firm. dark crimson, varnished berries, of medium size. It yields well and is very early. Anna Kennedy has pistillate or imperfect blossoms, and must be grown near some other perfect flowered kind which blooms about the same time. The berry is firm. bright scarlet in color, with bright yellow seeds. It is a very desirable fruit for canning, as its flavor is excellent. Splendid is a firm, dark crimson berry, of medium size and of very good quality; the blossom is perfect and the vine vigorous.

Ruby, Burt, Buster, Lovett, Warfield, Williams, Clyde, Haverland, Hero, Echo and Barton's Eclipse are among the best mid-season varieties. Ruby is a fine dark crimson berry, of medium size and good flavor, although slightly acid; it is a good cropper and the blossom is perfect. Burt is a bisexual or perfect blossomed variety. producing a large crop of medium sized light scarlet berries, which stand long shipment very well. Buster is a pistillate or imperfect blossomed variety, producing large, medium firm, light scarlet berries, the foliage is strong and dark. Buster promises to be one of the useful kinds for a local market. Lovett is a medium sized. firm, crimson berry, which is worthy of being more extensively grown, as the quality is good and the vine fairly productive. Warfield, that old standard variety with the dark crimson firm fruit, so much sought after by canners, did very well this year. Warfield is shallow rooted, and does best on a rather moist soil; it is a free runner and makes a very solid row; the blossom is pistillate. Williams, the berry which has been so generally cropped over Ontario, did not do so well as usual this year; nevertheless, it is too profitable a berry to be entirely discarded by the commercial grower. Clyde gave the usual heavy yield of soft to fairly firm fruit, a fine large berry, but a little too light in color to be called handsome. Where a good local trade can be supplied the Clyde gives excellent results, as it is a vigorous grower and heavy cropper. Haverland did well again this year, and the many excursionists who saw it remarked that its bright scarlet color and its good quality should make it a good canning berry. Its long flat shape is against it, but its good qualities to a great extent overcome this defect. Hero is a perfect flowered, vigorous growing kind, with fine. bright crimson berries of medium size. The seeds are bright yellow and varnished. Echo, another of the newer varieties, with perfect blossoms and good strong vines; it promises to be among the commercial varieties of the future. The fruit is of medium size, firm and scarlet, but owing to the dull color of the seeds it cannot be called handsome. Barton's Eclipse still remains among the varieties at the head of our list. it's firm crimson, high flavored berries making it a favorite with those who supply a fancy trade.

Among the best late varieties are Parson's Beauty, Saunders and Irene. Parson's Beauty did not do so well as last year. The vine is very vigorous, the blossom perfect, and the fruit a firm crimson berry, just

a little inclined to be seedy. It is a variety worthy of trial. Saunders is very much like Williams, but somewhat later, and holds its size better throughout the season. Irene is a late, strong growing pistillate variety, bearing large crops of medium sized, firm, bright scarlet, sub-acid berries. Irene promises to be one of the best late berries, as it ripens after the glut of the market is over.

O. A. C. H. S. PEART.

THE BEN DAVIS APPLE

ASK a man who is a commercial grower of apples, who grows and ships his own, and who has a good paying orchard, what variety has been the most profitable, and he will be almost sure to tell you the Ben Davis. Probably nineteen out of twenty growers will tell you the same thing. If this apple had the spicy flavor and quality of the Spy, it would be about as near the ideal apple as we could hope to attain. The good points about it are its early, regular and abundant bearing, and its good shipping and keeping qualities. Its greatest fault is its lack of quality, but it has some minor ones. Like all trees that bear early and heavily, it does not attain a large size, and in many localities is short-lived. It is subect to sun-scald and decay of the trunk. It cannot be classed as a strictly hardy tree; it may be classed as only half hardy in the northern sections. It has been planted more extensively during the last ten years than any other variety, and it is now a question whether it has not been overdone. No doubt the chief reason for its popularity in the past has been its splendid keeping and shipping qualities, making it most profitable for export to the British markets. It nearly always lands in good condition, and the buyer knows it will keep in good condition and will not spoil before sold. But with improved methods of handling and transport of our best quality of apples, so that they can be laid down in distant markets in perfect condition, the Ben Davis must inevitably be discounted on account of its lack of flavor and quality.

There is now another claimant for public favor, the Gano, closely akin to the Ben Davis, said to be a seedling of it. Being a comparatively new variety, it has not been extensively grown as yet. The tree closely resembles the Ben Davis in habit of growth and earl ybearing, but it is decidealy a better apple. It has also the keeping quality. in which it excels, and its qualities so r would indicate it as a safer one to plant . than the Ben Davis. It would be well for intending planters to not plant heavily of the Ben Davis, or of apples of its class at present, but rather plant mostly some hardy sort for purposes of top grafting, and if after a few years it is found that the Ben Davis still retains its place as a paying commercial variety, it can be top-grafted on the hardy stock, and that is decidedly the best way of growing it. But it is not with apples of this class that our reputation as an apple-growing country is to be acquired and maintained. We must aim to produce something that has high quality to commend it, for it is quality that counts in all lines, and we have the soil and climatic conditions to do this, and we can do it; we can excel all other countries if we go about it in the right way. A reputation for high quality is, undoubtedly, the surest way to success, but whatever may be in the future of the industry, it cannot be denied that in the past the Ben Davis has been the most profitable commercial apple grown in this country.—*Farmers' Advocate.*

COVENT GARDEN MARKET

BY THE EDITOR.

TO the writer, a Canadian fruit grower, no place could exceed in interest Covent Garden Market. Here could be seen fruit and vegetables from all parts of the world, in all kinds of packages. There were strawberries from the south of France, in "boats," holding between two and three quarts, at $1.00 each, two boats being tied together for shipment; tomatoes, probably greenhouse grown, about the size of our Snow apples, at from 8 to 20 cents a pound, put up in quarter seives or round baskets, containing about a peck each; green gooseberries, in half seives of about 18 quarts, at from $1.75 to $2; cherries, from the south of France, in little flat boxes, perhaps 10 x 8 x 2½ inches, in which the cherries were evenly laid against the top and showed up very prettily, at 50 cents a box, five boxes being tied together for shipment; asparagus, in "flats" or crates, holding eight "bundles," each bundle made up of six "hands," and each hand of twenty stalks, and selling at from 40 to 60 cents a bundle; peaches, no doubt greenhouse grown, packed in cotton batten, in boxes one layer deep at $3.75 a dozen; green beans, from the south of France, at $2.00 for a ten-pound basket; cantelopes, from Toulon, of course quite out of season in England on the 28th May, the date of our visit, at $4.00 each; endive in crates; apricots packed in cotton batten, in shallow crates; lemons from Naples; apples from Tasmania, etc.

The packages used at Covent Garden interested me very much, especially because nearly all of them are returnable. The great heavy round osier willow basket, made in various sizes from quarter seive (peck) to seive and even larger, was the most common, and looked as if it would stand use for ages. The buyer is charged a shilling extra for the basket, which is allowed him back again if he returns it.

Surely in this the English fruit grower is wiser than we are, for he makes the buyer pay for the basket if he wants it; while in every case with us and our gift packages, we pay for the basket and give it to the buyer whether he has any use for it or not. Usually he only throws it away and counts it valueless. Here is a constant waste in our Canadian fruit industry, amounting in many cases to hundreds of dollars a year simply *thrown away* in fruit baskets. Is it any wonder that our fruit growers do not make much money when prices are low? Is it not time to call a halt and see if we cannot get an allowance for our packages, or else use returnable crates and baskets for all near markets!

"We would like to see your American gift packages in use here," said one of the Covent Garden salesmen, "it would save us a heap of trouble returning empties." No doubt our system facilitates trade, but it goes pretty tough with the grower, who pays rather dearly for the convenience.

On a second visit we entered the auction salesroom for foreign apples, to us a most interesting department of Covent Garden. All down each side were the elevated booths of the different houses whose names are familiar to us apple growers in Canada, as, for instance, "J. B. Thomas," "E. & O. Kelly," "Garcia, Jacobs & Co.," etc. Each booth had rising tiers of benches in front, for the convenience of buyers, and, below the auctioneer and in front of all the buyers, the porters kept bringing in samples of the various lots of fruit, opening them on a table in front of all, while the auctioneer knocked them down so rapidly that to us it seemed as if no chance for fair bidding was allowed.

On handing our card to Mr. Garcia, with whom we have many times had correspondence, he received us with the greatest courtesy, and gave us much attention and the fullest explanation, while the auctioneer, Mr. Simons, sold 1,500 boxes of Tasmania apples. The time occupied was little more than half an hour, and yet the prices were very satisfactory. Their boxes are not nearly as attractive as those our apple growers are using; they are smaller, too, and the fruit is not packed in them so neatly, although in most cases wrapped with a thin paper. The favorite variety from Tasmania seemed to be the Sturmer Pippin, which sold wholesale at from $2.25 to $2.50 a box. Mr. Garcia gave us a sample to eat, and certainly the flavor was good. In size it is about equal to the average Baldwin, but not so highly colored. In our opinion it cannot be compared to our Canadian Baldwin, and, if we could place them side by side with these Tasmanians, in equally perfect condition, we would not fear the result of the sale.

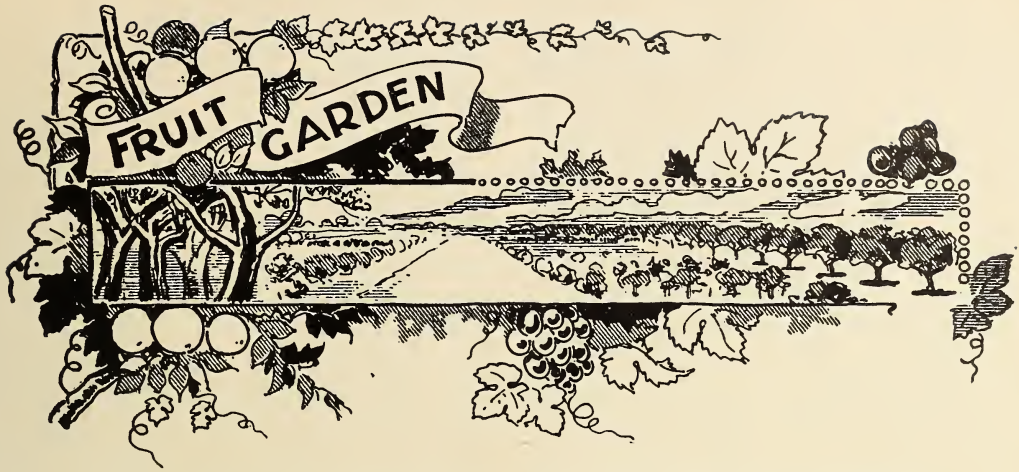
The highest prices for apples are realized toward the end of May, the lowest average price being $1.75 to $2.50 per forty-pound box, because the American apples are over and Tasmanians have scarcely begun coming in. Speaking of the best time to get the highest price, one Covent Garden salesman said bluntly, "If you are going to spend your money in cold storage, you should sneak a week where you got it yourself," and no doubt he said a truth.

Messrs. Garcia, Jacobs & Co., have handled as many as 27,000 packages of fruit in one day, so it is evident they do a large trade, especially in apples and oranges. "We paid one firm in France," said Mr. Garcia, "£5,000 in one week for consignments of plums, which will give you some idea of our business."

Taking all things into consideration, we came away rather encouraged than otherwise, with the prospects before the Canadian fruit grower, and see no reason for discouragement, when we consider how favorably our fruit and our packages compare with those of the European countries.

COLD STORAGE IDEAS.

THE fruit season ust closing has been remarkable in many ways, but in nothing more than in the sudden and enormous development of the cold storage business. Cold storage has been largely practiced hitherto, but never on the scale attempted this year. More important yet is the amount of really new knowledge which has come to light through careful observation, intelligent study and systematic experiment. It would not be far from the truth to say that the information developed during the current season is greater in extent and variety than all we knew about cold storage before. Possibly future experience will contradict some of the discoveries of 1902-3, but it will certainly confirm others. One discovery seems to be that low temperatures are best for nearly all fruits, including soft fruits like peaches. Further than that, fruits token out of low temperatures seeme to keep quite as well on the venders' stands as those taken out of higher temperatures. Wrapped fruit usually keeps better than unwrapped fruit and always ships better.—*Country Gentleman.*



THE FERTILIZATION OF APPLE BLOSSOMS.

BY

H. S. PEART, O. A. C., GUELPH.

THE cause of unfruitfulness in orchards and vineyards has always been the subect of much surmise, conjecture, and variation of opinion. Some authorities attribute it to lack of cultivation, others to lack of plant food, others to lack of pruning, and so on through a long list of causes. Few, however, have considered it in relation to the power of self-fertilization. For years, however, apple growers have followed the plan of growing a great number of varieties in order to make fertilization sure. This brings before us the question: Are some varieties sterile to their own pollen? Everyone will readily admit that where varieties are mixed in the plantation the chances for a perfect set of fruit are greater than where each variety stands isolated. How far this intermingling of varieties need be carried has not been definitely ascertained.

In the spring of 1892 M. B. Waite, of the U. S. Department of Vegetable Pathology, began a set of experiments to ascertain if pear blight was carried from infested to uninfested trees by insects which visited the blossoms. It was found that insects are instrumental in assisting the spread of the disease. The question then arose: How can the insects be kept out? Experiments were tried by covering the blossoms and excluding the insects. Very startling indeed were the results. It was found that fully one-half of the so-called commercial varieties of pears are sterile to their own pollen.

The results of the experiments of Waite, together with inquiries from prominent horticulturists, as to the cause of unfruitfulness in orchards and vineyards caused others to follow up the work. Prof. S. A. Beach, of Geneva, began a study of the grape and published his report in the annual report of that station for 1892. Since that time he has continued this work, and quite recently has published a bulletin thereon. Prof. Goff of Wisconsin, and Prof. Waugh, of Vermont, have worked with plums. Prof. Craig did some work with apples while at Ottawa, but never published a complete report.

As the apple is now considered the main fruit product of Ontario we should know more of its power of self-fertilization. The

need for such knowledge prompted he writer to make a few simple experiments, which, at least in part, go to show that a few of our most common varieties may be grown alone and yet a perfect set of fruit secured. The observations made extend over but one year, and too much must not be inferred from them. In order to perfect a list of varieties which are self-fertile the work should be continued for at least five years, and be conducted on a somewhat more elaborate scale.

Sterility may be due to any one of several causes. Some of the more common of these are as follows: Defective pistils, insufficient pollen, difference in time of maturity between stigma and pollen, and impotency of pollen. Of these the last is perhaps the only one which can apply to any great extent to the apple blossom.

In order to ascertain whether or not a variety is self-fertile many different methods may be followed. The plan followed by the writer was very simple indeed. All the material required was a number of small paper bags large enough to cover the cluster of blossoms, some string, and some labels. One of these bags was placed over the bunch of blossoms just before they opened. The bag was securely tied about the mouth so that no insect could push its way in. Five or six such bags were placed on each variety tested to provide for accidental loss of one or more. Each bag was plainly labelled with the date on which it was placed on the tree, and with the number of blossoms in the cluster. The bags were allowed to remain on the trees until the fruit had set and all blossoms and many weak fruits had fallen.

On removing the bags on June 19th it was found that very few varieties had set fruit. It was, however, very encouraging to know that a few varieties were capable of setting fruit by their own pollen. It was found that out of tyenty-nine varieties tested only eight had set any fruit at all. Those which set fruit were: Alexander, Baldwin, Chenango, Early Harvest, Greening, Holland, Twenty Ounce and Ontario. The Baldwin had set two fruits, while the others had set but one fruit each. With the exception of the eight varieties mentioned. all the other varieties set no fruit whatever in the bags, while the balance of the tree, or trees, set full crops of fruit in every case. The non-setting of fruit in the bags may have been only chance, hence it would be quite unfair to say that these varieties are at all times self-sterile. What happened in 1902 might not occur again, and many of them might prove to be self-fertile if this work were continued for a number of years.

Omitting from the list those varieties which proved themselves to be capable of even a very limited self-fertilization, many of our best commercial varieties are left out. Blenheim, Ben Davis, Canada Red, King, Mann, Fameuse, Spy, Ribston, and many other more or less desirable varieties seem to be unable to set fruit unless fertilized with foreign pollen. We cannot afford to leave all of these varieties out of our commercial orchards simply because they do not set fruit when planted by themselves, for it is well known that in a mixed plantation they produce paying crops.

The question then arises: How are these desirable self-sterile varieties to be most profitably grown?

To answer the question we need to know more about the dates on which the different varieties bloom, because it is necessary to have the pistil of one variety ripe at the same time as the pollen of another, in order to have complete interpollination. It will be sufficient in most cases to determine the date of blooming, as the pistil and pollen of the apple are both ripe about the time the petals open, and are capable of remaining receptive for from one to five days. Taking the dates of blooming, as ascertained by

careful observation, we have certain data which enables us to know ust what varieties to plant in order that the pollen from one may be ripe at the same time as the pistil of another. It also gives us an idea of the order in which to plant, so that the greatest amount of pollen may be transferred in the most simple manner, namely, by the wind. For instance, by consulting our record, we find that Spy, which by many is considered one of our best winter apples, is in full bloom at the same time as Ben Davis and Princess Louise, and but one day later than many other varieties. Now, if one desires to plant Spy he would in so far as the date of blooming is concerned, be safe in mixing with them a few Ben Davis or some variety blooming about the same time. Any number of desirable combinations may be worked out to suit each individual planter's conditions.

In regard to those varieties which have proven themselves to be self-fertile it would probably be safe to plant them singly. It is, however, seldom advisable to plant exclusively with one variety. Mixing of the varieties which we wish to grow will give us more certain results in every case, even though some of them rank as self-fertile. The reason for the necessity for mixing self-fertile varieties is that a variety which proves to be self-fertile in one place may prove self-sterile in another, and under different management, as is the case with the Kieffer pear in many parts of the United States.

Growers are often prone to condemn a variety because it produces no fruit, even though the tree may blossom profusely. In such cases it would be well to ascertain whether this so-called sterility is due to defective pistils, lack of vigor, lack of pollen, self-sterility, or lack of mutual affinity between it and surrounding varieties, before condemning it as unprofitable. If the cause be defective pistils, which rarely happens, they may be right in condemning it. If lack of pollen, let them try mixing with a few trees of some variety which produces pollen freely. If self-sterile, the last-mentioned remedy may tend to fruitfulness if the mutual affinity be perfect.

To insure the greatest number of fertile blossoms in the orchard, it is just as necessary to have the varieties intelligently mixed as it is to prune, spray, or cultivate.

VINEGAR FROM WINDFALL APPLES.

THOSE windfall apples will make good vinegar if gathered up and run through a cider mill and then the juice thus obtained allowed to ferment. The riper the apples the stronger the vinegar they will make. If the apples are very green a little sugar added to the cider before fermentation sets in will improve the quality of the vinegar very much. The cider should be placed in wooden or earthen vessels and set in the sun until fermentation has run its course. It then can be stored in the cellar or other convenient place for use.

Windfall apples in the Experiment Station orchard at Stillwater, Oklaa., were gathered July 31 and made into cider. These apples made an average of 2½ gallons of cider to the bushel. In thirty days the cider had finished fermentation and was a vinegar of fair quality. Pipe peaches were gathered on the same date and the juice pressed from them and placed in jars for fermenting. In thirty days this was a vinegar of a better quality than could be found on the local market.—*American Gardening.*

THE GRADING AND PACKING OF APPLES

AN ADDRESS BY M. ALEXANDER MCNEILL BEFORE THE WESTERN NEW YORK FRUIT GROWERS' AT ROCHESTER, JANUARY 28TH, 1903.

IT needs no argument to show that systematic grading enhances the value of fruit, not only from an asthetic point of view, but even for economic purposes. A package containing only fruit of the same kind appeals first to the eye, but what is more important, it appeals also to the good judgment of the thrifty customer. A man who wants to buy large, highly colored apples has little use for those that are "off" color and somewhat deformed. On the other hand, there is a class of customers, especially in the English markets, who prefer the smaller apples, and will even pay a higher price for them, and such find the larger apples a distinct loss. Another lass of customers, using fruit solely for culinary purposes, are not particular as to color, and do not object particularly to a few defects so long as they do not cause undue waste.

Making a comparison between the growers of the eastern and western sides of the American continent, noting the difference in the mode of conducting the fruit business, it is apparent that the fruit growers of California, Oregon and British Columbia excel in the grading and packing of their fruit, the fruit growers of the east having the advantage in point of flavor. In fact, the reputation of California fruit and the high prices which are obtained for it are largely a matter of grading and packages. I am not particularly hopeful that there will be a revolution soon among the fruit growers of the east in this particular. The habit of tumbling fruit into baskets and barrels indiscriminately has been too firmly ingrained into our natures, and until a new generation of better trained fruit growers takes control of affairs, I do not see that we can hope for much change. The younger generation will either have to improve upon their predecessors in this matter of grading and packing, or they will have to abandon the fruit business. No change in varieties, not even a change in modes of culture, will enable them to hold with any degree of profit against the better methods of packing and grading of the progressive energetic western grower.

The grading of apples is simply a matter of arranging them in classes according to their qualities, and in assigning an apple to any particular grade we take into consideration the following: Size, color, form, flavor, keeping qualities and material defects, such as worm holes, bruises and scabe. Of these, flavor and keeping qualities are included in the name of variety. When we speak of a Duchess apple we associate with it a certain degree of flavor and short keeping qualities. When we speak of the Ben Davis we associate with it long keeping qualities, though some would deny that any flavor is implied in the name. The other four qualities determine the grace names which we shall adopt for the different brands of apples.

The Parliament of the Dominion of Canada has passed what is known as the "Fruit Marks Act, 1901." This act designates the marks that must be used throughout the Dominion of Canada for the grade of apples. Apples of the best quality are marked "No. 1" or "XXX," second quality "No. 2" or "XX," third quality "No. 3" or "X," and one or other of these six marks must appear upon every closed pack-

age of apples. The same act defines No. 1 apples, but it does not define any other grade. This definition reads as follows: Packages marked No. 1 or XXX shall contain well grown specimens of one variety, sound, of nearly uniform size, of good color for the variety, of normal shape, and not less than 90 per cent free from scab, worm holes, bruises and other defects, and properly packed.

No definition, however, is given of a No. 2 apple or of a No. 3. This is not an ideal system of grading, but it meets with the needs of the apple business as it is conducted at the present time, and as it is likely to be conducted in the Eastern States and Canada for many years to come. In an ideal system of grading nicer distinctions of form, color and size would be noticed, and a due allowance would be made for such physical defects as scab, worm holes and bruises, but in the actual practice of the orchard this is impracticable. It is probable that 75 per cent of all the apples in the eastern part of the continent are sold to dealers who go through the country and buy by the barrel, or for a lump sum all the fruit in the orchard. In either case the buyer puts in his own gang of packers, and the apples are graded under the supervision, or supposed supervision, of the boss packer. These men are employed but a few weeks in the year, and of necessity are not skilled laborers. Any effective legislation must recognize this, and will not, therefore, insist upon a system of grading that demands great skill. A No. 1 apple is simply a fairly well colored apple of any size, not small for the variety, and practically free from worm holes, bruises and scab. No attempt has been made by the government to define a No. 2 or No. 3 apple. This is left to private agreement, or fruit so marked is sold by sample. I might add in parenthesis that all fruit must be packed so that the face or shown surface gives a fair representation of the whole package, which must also bear the name and address of the packer. As a consequence, when a barrel of Canadian No. 1, or XXX apples is exposed for sale the buyer is reasonably sure of getting sound apples, of fairly good color and size. If marked No. 2 or 3, or XX or X, the face will show the quality of the fruit. It has been suggested that in a No. 2 grade apples be admitted having worm holes in the blow end or a slight amount of scab or dry bruises or other defects, that do not cause serious waste or detract much from the general appearance of the apple, but it is to be feared that if this were embodied in the act of parliament the definition could not be given with the definiteness always desirable in legal documents. Such a definition would be a workable one between two parties who had thoroughly agreed upon the amount of the defects to be permitted, but I am inclined to think that even a most carefully worded definition admitting defects would be apt to give rise to many misunderstandings. Yet such fruit has a distinct value, and undoubtedly will be shipped for many years to come. It is much easier for the intelligent and progressive fruit grower to grow an apple of good size and color, free from worm holes, bruises, and scabs, than it is to give a definition for a No. 2 apple, permitting defects, that lawyers would not readily tear to pieces the first time a case were tested in the courts. My advice, therefore, is to improve our methods, legislate for a perfect apple, having only such defects as can fairly be said not to cause appreciable waste, and in this way not show too much leniency towards the growers and the packer, who wishes to deal with No. 2 fruit.

But the progressive fruit grower will not be contented with merely meeting the comparatively low requirements of any workable legislation. At least three grades may be made in the Canadian No. 1 class. One

grade would contain the largest apples (the sizes varying with the variety), all evenly colored and perfect in form and free from defects. Another class may be made, with the same requirements, except that medium sized apples would be used. A third grade would contain good sized, sound apples, not uniform in color or size, and having possibly some defect that does not cause appreciable waste nor seriously mar the looks.

All these grades would be No. 1 Canadian standard. Canadian shippers add description names to the grade names, thus, for best grade, some use "select" or "choice" No. 1. For the next grade "medium" or "prime" No. 1, and for the third simply No. 1.

The following grade marks have been suggested and used by Mr. L. Woolverton, editor of the Canadian Horticulturist:

For apples—

2¼ inch XXX	or small or dessert.
2½ inch XXX	or No. 1.
2¾ inch XXX X	or A No. 1.
3 inch XXX XX	or Extra No. 1.
3¼ inch XXX XXX	or Ex. large No. 1.

Others use purely arbitrary names such as "Imperial." All these names have something to recommend them—none received universal approbation. In a general way I would suggest that the names adopted be as simple as possible, or such as are well known. Instead of getting something that only the initiated could understand, choose such names as will make it perfectly clear to the consumer which brand indicates the best, the second best, and the lowest grade of fruit. Any mystification in this matter will not work to the benefit of the producer or consumer, but to the benefit of the middleman if to anyone. Uniformity in grading, packing and marking is very desirable for each particular State, but it is much more desirable to have a uniform system for all the States, and there seems to be no good reason why a uniform system should not include the whole North American continent.

FRUIT WELL SERVED.

FRUIT is many times more palatable at the table when daintily served. Those country housewives who have tried to introduce it at the family breakfast table without success should try what daintiness will do. The eye once tempted, the battle is won. Fruit is extremely healthful for the morning meal, much more so than its bulk in solid food which would probably take its place if fruit were not temptingly served.

It is important that fruit be very cold when it comes to the table. Oranges and bananas should be set on ice over night and should be served in the prettiest china or silver that the house affords. Strawberries when large are best served whole with their stems intact, so they may be dipped in powdered sugar and eaten from the fingers one by one. Cherries and currants with their stems on may be moistened in a little white of egg and dipped in granulated sugar, then piled high on the plates. Apples should, of course, be wiped dry and then polished until they shine. Pears and grapes in their season are fine breakfast fruit and look well in a center-piece, the pears half covered with the stems of purple grapes. Peaches and grapes are also a pleasing combination. A musk or watermelon cut apart in the shape of a flower is extremely pleasing as a center-piece. Either should be well chilled before serving.

MONEY IN TREES

FRENCH FARMERS WHO GROW CROPS OF CHESTNUTS FOR MARKET.

THE French understand how to make money out of trees. They appreciate the value of the forests, and have some of the largest and best in the world. There are vast woodlands belonging to the government and private holdings in which the trees are as well cared for as in our city parks. Only the ripe trees are cut, and every piece of fallen wood is saved.

The roads and streams and little canals of France are lined with poplars. Some of the trees are a hundred feet high. They are bare of branches, with only a tassel left on the top. Others are full limbed, and others are just sprouting new growth on all sides. These poplars are grown for their branches, and are finally cut down for wood or for furniture. The branches grow rapidly. They are cut off year after year, put up in bundles and sold to the bakers to make the hot fires necessary for the crisp crust on the French bread. There is such a demand for them that raising them is one of the chief industries of France. The poplars are planted in places which are good for nothing else, and after five years each will annually produce at least twenty cents. Later on the trees are cut down and sold. Willows are grown in the same way, their sprouts being used for baskets.

The French make money out of chestnuts. They grow varieties which are from two to three times as large as the American chestnut, and sell them to the fruit stands and the groceries. The chestnuts are used to dress turkeys, geese, chickens and game. and they are also used for dessert. The confectioners make candy of them, and the best candied chestnuts being forty-five cents per pound, or, if coated with chocolate. fifty-two cents a pound. There are large establishments in France which do nothing else, one at Lyons, handling 25,000,000 pounds of chestnuts a year.

The French chestnut trees are not cultivated. They are usually planted on poor earth and in time are cut for their wood. Some chestnuts are grafted, and there is o doubt but that the French and Spanish chestnut can be grafted on our native American sprouts. There are men in Pennsylvania and New Jersey who are making chestnut grafting commercially profitable, and the same might be done in other parts of the United States.

In South France, Spain and Italy chestnuts are ground into a meal and used for bread, and they command good prices in such localities. In the United States they are chiefly sold by fruit venders and by the confectioners and bring $7 or $8 per bushel. In France they sell by the kilogram for 2 or 3 cents a pound.

The French have 1,000,000 acres devoted to gardens and fruits, and in riding over the country you pass fields of hotbeds and see glass frames propped over plants outside the beds. In many places glass bells are used to cover the individual plants, and there are some sections which raise potatoes under glass for export to London.

The French have studied the soil, and the sun, and they coax both to work. They feed the crops rather than the land, and in places get three crops a year, through intensive cultivation. Near Cherbourg cabbage is raised early in February. After it is taken off a crop of potatoes is planted. and a third crop comes on in the autumn. This is on land that has been used for generations.

And still Americans talk of old Mother

Earth being worn out. The old lady has all the possibilities of perpetual youth, but coquette that she is, she must be fed with the dainties she loves and petted to make her yield her best crops. This is especially so as to the vineyards, which have been used for generations. The French vines are cut down every year, and every vine has its individual stake, and one might say its individual treatment.—*Mail-Empire.*

PROTECTION FOR CHERRIES IN THE COLDER DISTRICTS

BY PROF. W. T. MACOUN, C. E. F., OTTAWA.

THERE has not been a full crop of cherries in the Ottawa district and at the Experimental Farm since 1898, owing to the flower buds being killed by frost either in winter or spring. Sometimes the flowers never open, and again when they do open, the pistil is found blackened and the flowers rendered unfertile. In 1902 there was a light crop of fruit, and in some trees a medium crop, and on one tree a heavy crop, the variety being one of the seedling dwarf Koslov Morellos, mention of which has been made in the Canadian Horticulturist before. This tree was very low growing and partially protected by snow in winter. This year the crop is a failure, there being only a few fruits on trees of the hardiest varieties. The Koslov Morello, which fruited so heavily last year, was winter killed. Fortunately this tree had been previously propagated.

FIG. 2645.

The hardiest cherries tested at the Central Experimental Farm are among the Russian varieties, the Vladimir and Orel 25 being the hardiest in the flower bud.

This note was written principally to call attention to the value of protection for the cherry. The accompanying photo, taken by Mr. F. T. Shutt when the cherry tree should have been full of bloom, shows that it was only near the ground where the flower buds were protected by snow that they developed.

In the Ottawa district, and in districts where the climate is similar, unless we get hardier varieties, we shall have to change our methods of growing cherries and have dwarf trees or train the trees in such a way that they can be protected. The latter method is not likely to be adopted, but if dwarf trees could be obtained of the hardiest varieties there would be the double advantage of having trees which could be protected readily from birds, as at present when there is a crop of fruit the birds get a large share of it, especially when there are only a few trees. At the Central Experimental Farm we are working to obtain a dwarf cherry which will be equal in quality to any of the tall growing Morellos.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

CIVIC IMPROVEMENT

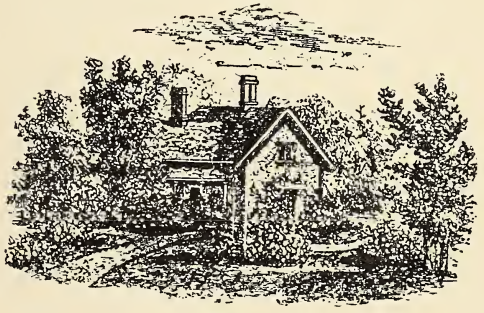
WORK FOR LEAGUES—SUGGESTIONS TO HORTICULTURAL SOCIETIES, SCHOOL BOARDS, FAIR BOARDS AND CLUBS—DANGERS OF DIRT.

ANOTHER good work for leagues to undertake is to arouse the interest of the school children in botany and a general love of flowers by inducing state and county fair boards to offer premiums for the best display of potten plants and cut flowers grown by pupils of the public schools. The prize should go to the school and the moneys should be spent for something all the pupils may enjoy. A premium for the best botanical display and the most comprehensive collection of grasses native to the state or county might be given to the individual pupil.

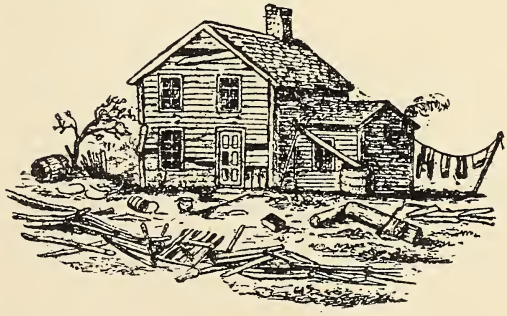
One association exhibited at its county fair a miniature cottage with vine-clad porch and pretty window boxes, the tiny lawn and flower beds were as neat as hands could make them, and all the necessary outbuildings were designed with an eye to adornment. When what the ladies intended to do became known offers of assistance came from every direction. The carpenters, painters and other workmen had a good time over the work.

By the side of this was built another miniature house, without adornment. A weedy yard, no vines, no flowers, old unpainted buildings, untidy fence, and old board walks made a lesson all could read.

These tiny cottages were the great attraction of the fair. It was difficult to get near them, and finally a wire had to be stretched around them to prevent their ut-



Home."



"Lodgings."

FIG. 2646

ter destruction. Not a person who saw them but carried the lesson home and viewed his own premises with critical eyes.

* * * * * *

Two teachers in the manual training school of Toledo, Ohio, while on the way to school were discussing the dangers of dirt. They found a chip of wood, and stooping down scooped up less than a teaspoonful of dirt from the street, carried it to the laboratory, put it in a culture tube, and when a week or two later a professor from Johns Hopkins University happened along this tube was shown to him. Among many other germs the tube contained the well developed bacilli of typhoid, of scarlet fever, of diphtheria, of tuberculosis, and two other bacilli so rare that permission was asked to take the tube back to the university in order to see if they could be classified. Toledo's dirt is duplicated in every city in the world, and it is not agreeable to think of carrying such matter into the house, where, swept up in dust it fills our lungs with deadly germs.

The only comfort science gives us is that, following a law of nature, the big bacilli are forever destroying the little bacilli, so that while we are constantly breathing these deadly germs into our systems, yet it is only when conditions are favorable that disease develops. Let each city, town and village build to the god Uncleanliness altars called crematories and sacrifice to him therein all that are his. Let the fire burn perpetually, so that his servant Disease, finding no more work to do, will lay himself on the altar as a final sacrifice; and in the places made vacant by Uncleanliness and Disease let flowers bloom that their fragrance may ascend as a sweet incense to the god of Health, and as an acknowledgement that his servant Cleanliness has followed the command to let in a little sunshine.

Science, the other name for common sense, concedes that cremation is the only way in which garbage, offal and waste of all sorts may safely be disposed. The pollution of our streams and rivers by city sewage should be made a criminal act. Mr. Kipling says the soil of India is so impregnated with the filth of ages that a fall, which grazed the skin has been known to cause lockjaw within a few days. Let us keep America wholesome. Jacksonville is one of the thirty-three cities using a typical crematory. It is a combination of three furnaces of fire brick; one to burn the solids, one for evaporating and burning the liquids, and a "combination chamber" in the stack to completely decompose and burn the vapors. Garbage, "combustible waste," night soil and dead animals are dumped into the furnaces through circular openings

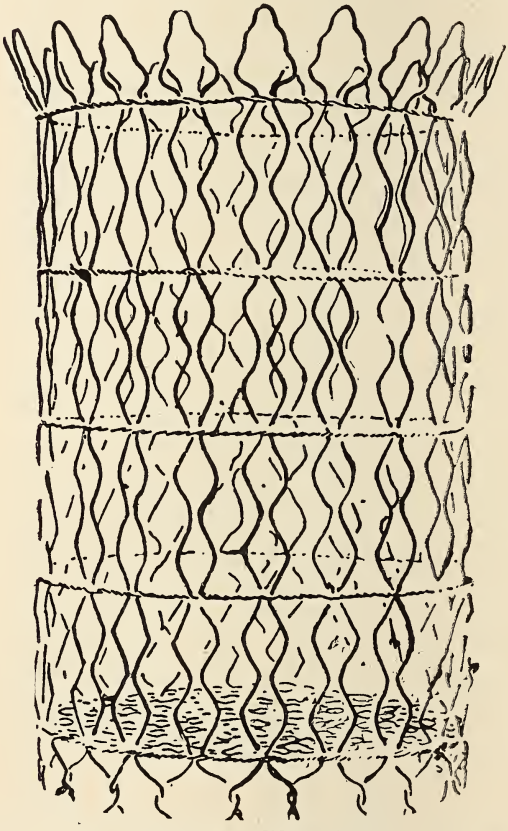


FIG. 2647. GALVANIZED WIRE RUBBISH BASKET FOR STREET USE.

This basket is strongly recommended by the Thomasville, Ga., Association, because the contents may be burned in the basket. It is a good idea for an association in small towns, where there is no municipal collection of waste.

in the top and no handling or sorting of filth is required. The floor of the crematory is on a level with the top of the furnaces, thus making the dumping of carts and wagons quick and easy.

There is absolutely no excuse for hauling ashes, garbage, swill, etc., through a city in open wagons. The illustration below shows a water-tight, steel wagon that is easily cleaned and disinfected, making it as nearly odorless as possible. It has also the merit of looking well in service.

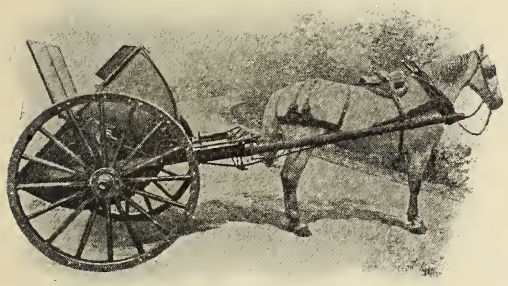


FIG. 2648. STEEL SANITARY CART.

This cart is water tight, almost air tight, and can be turned bottom side up if necessary for a thorough emptying or cleansing. It has two lids for easy loading, weighs 1,300 pounds, and carries 37 cubic feet.

The women of Bethany, Missouri, called a meeting at the court house and organized a society which was called the Woman's Improvement Association. In four months the streets had been cleaned, the city council requested to enforce with greater rigor the various sanitary ordinances, and the court house square has been made more attractive by vases of growing plants. The ladies solicited the necessary funds, and in conjunction with the fraternity owning the cemetery secured the services of a permanent sexton. In addition to this flower beds have been made in the cemetery and the churchyards. This association also opened a public waiting room, which is one of the largest and finest rooms in the city. It is light and airy, well furnished and provided with all the necessary toilet conveniences. The tables contain plenty of good reading matter, which, with the beautiful plants and pictures, makes the place seem quite home-like. The women of this club have employed a matron, whose duties are the general oversight of the room, and to make comfortable all the guests. Bethany has a population of less than three thousand.

* * * * * *

The improvement league of which I am a member has, through the generosity of one of its members, distributed to the school children of the city twenty-five thousand packets of flower seeds. Another member has offered $50 in prizes to boys and girls of fifteen years of age for the best kept lawn and premises, and for the prettiest flower beds. These flower seeds and prizes have aroused a lively interest among the school children, and cannot fail to help the appearance of the town to a marked degree. We have also induced the county fair commissioners to offer prizes for the best cut flowers grown by children. We are trying to induce the city school board to make an exhibition of the drawings and water colors of the school children at the county fair. It is only a very few years until the question of the centralization of the country schools will be up before the people, and an exhibition of some of their work will give the country people an idea of the advantages of the graded schools. These are a few of the things we are doing, and we yet hope to have a botanical school garden started near the city.

The Fairhaven Improvement Association, Fairhaven, Massachusetts, is eighteen years of age, and has done a great deal in the way of setting out trees (over two thousand), establishing bath houses (over one hundred), converting an old cemetery into a park, instituting work toward another park, reclaiming another old graveyard and making it sightly. The association is now projecting the erection of a fine drinking fountain at the entrance of a new and beautiful bridge.

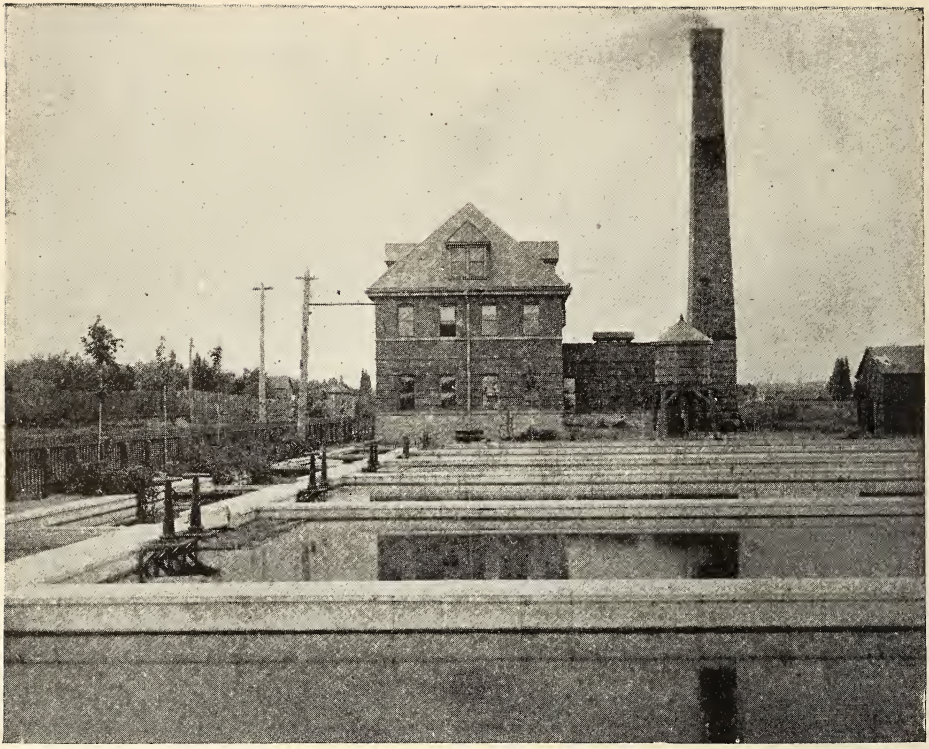


FIG. 2649. SEWAGE DISPOSAL WORKS AT HAMILTON, ONT.

AN IMPORTANT PHASE OF CIVIC IMPROVEMENT.

ABOUT eight years ago Hamilton undertook to solve the sewage disposal problem by building an elaborate system of interception works to prevent the pollution of the waters of Hamilton Bay.

The sewerage system of the city is one of the most complete to be found anywhere. There are about 3½ miles of main trunk sewers and 49 miles of laterals or small service sewers. By means of the trunk sewers the city is divided into three districts for sewer purposes. The sewage from the easterly district flows to the Wentworth street disposal works, that from the center to the Ferguson avenue works, and that from the westerly district into the marsh land lying between the city limits and Dundas. Already provision has been made for a third disposal works in the westerly district, and when these are in operation there will be nothing but a clear water flow into Hamilton Bay.

The disposal works now in operation, which handle the great bulk of the city's sewage, are the first to be erected in Canada. They were built in 1896, and are of the well known chemical precipitation sort. The effluent or clear water flow from these works, after the solids from the sewage have been extracted, flows into the bay. The solids are pressed into a stiff, clay-like sludge, which is used by farmers for fertilising purposes. The cost of operating the two works now in operation is about $13,000 a year.

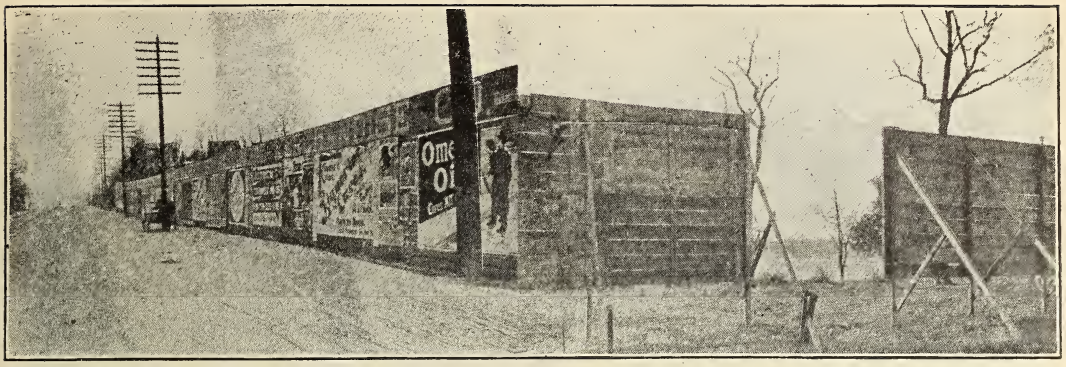


Fig. 2650.

THE BILLBOARD NUISANCE

THE billboard nuisance is one that should be taken in hand by our horticultural societies, and all clubs having in view civic improvement work. It is a shame the way in which some of the most beautiful parts of town and country scenery are disfigured by ugly billboards advertising various soaps, tobaccos or oils, and there is no limit to the abuse, except possibility, for, if they could, these money grabbers would paint their waves upon the very clouds of heaven.

In some of the States laws have been prepared to prevent this abuse, and the following is a copy of an Act to be introduced in the Pennsylvania Legislature:

AN ACT

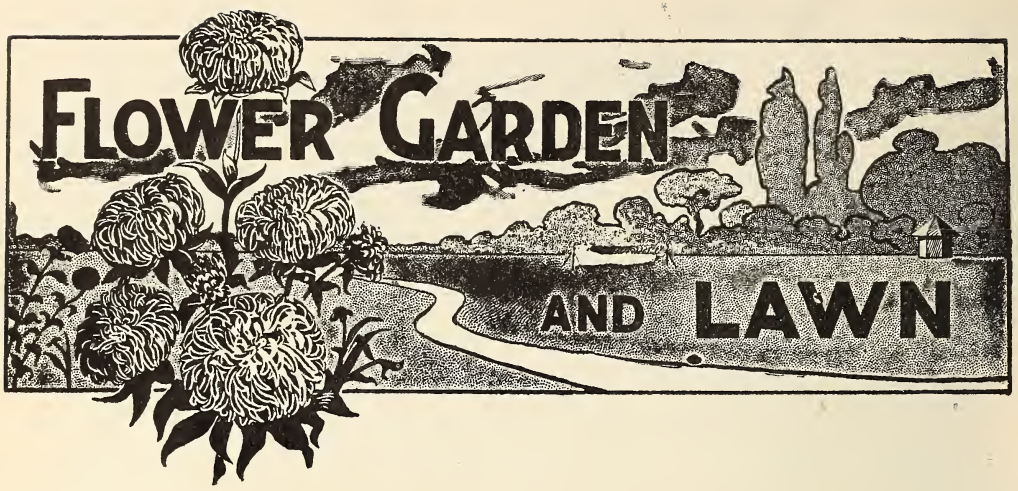
To prevent the pasting, painting, branding, stamping of advertisements, notices, signs, cards or posters in certain places, and providing penalties for the violation thereof.

Be it enacted, etc.

Section 1.—That no person shall paste, paint, brand or stamp, or in any way whatsoever place upon or attach to any building, fence, bridge, gate, outbuilding or other object upon the grounds of any charitable, educational or penal institution of the State of Pennsylvania, or upon any property belonging to the State of Pennsylvania, or to any county, township, borough or city therein, any written, printed, painted, or other advertisement, bill, notice, sign, card or poster; provided, that nothing herein shall be so construed as to prevent the posting of any notice required by law or order of court to be posted, nor to prevent the posting or placing of any notice particularly concerning or pertaining to the grounds or premises upon which the same is so posted or placed.

Section 2.—That no person shall paste, paint, brand, stamp, or in any manner whatsoever place upon or attach to any building, fence, bridge, gate, outbuilding or property of another whether within or without the limits of a highway, any written, printed, painted, or other advertisement, bill, notice, sign, card or poster, without first having obtained the written consent of the owner or tenant lawfully in possession of occupancy thereof.

Section 3.—Any person convicted of violation of the provisions of this Act shall be deemed guilty of a misdemeanor and shall, upon conviction, be fined in a sum not less than five, nor more than twenty dollars; and such written, printed, painted or other advertisement, bill, notice, sign, card of poster is hereby declared to be a public nuisance, and may be removed and abated as such.



FLORAL NOTES FOR SEPTEMBER

BY

WM. HUNT,

O. A. C., GUELPH.

PLANT PROTECTION. The temporary protection of the more tender varieties of both pot and border plants from early frosts is a matter that will demand watchful attention on the part of plant lovers during September. By the exercise of a little watchfulness and care at this season the beauty of many a fine specimen plant—or perchance of a bed or border of plants—may be prolonged well on until late autumn if a slight covering or protection of some kind be given them at night during the prevalence of the slight frosts of early autumn, that often precede perhaps a month of beautiful summer weather experienced later on. By keeping even a light cotton or perhaps a woollen covering near at hand to cover the plants with, or by lifting the plants in pots for a night or two underneath the shelter of a veranda, tree, or fence, their beauty and safety may be insured against these slight frosts that will at least mar their beautiful summer tints, if it does not, as is oftentimes the case, blacken and destroy their beauty entirely. Watch the thermometer closely, and remember that 40 degrees at sundown certainly means a decidedly chilly, if not a frosty night. Cover up the plants even if doubtful; it is far better to be sure than sorry, especially when it is only a question of a little pleasing exercise to ensure safety.

THE HARDY BORDER. This is a good time to transplant—and divide if necessary a few of the hardy border plants. Herbaceous Pæonies, German Iris, Dicentras (Dielytra), and any of the early flowering garden lilies and Lily of the Valley. If the clumps of Iris, Pæonies or Dicentra are very large, they should be divided into clumps having from three to five crowns. These will make fine strong clumps, and give good flowering results the first season if properly planted. In planting Iris, the mistake of planting too deeply is often made. The large fleshy rhyzomes of these plants should be only barely covered with soil when planting them, burying them en-

tirely underneath the soil is unnatural and invites rot and disease to the plant. The German Iris will succeed in almost any kind of soil, or in any part of the garden, but a rich, loamy, well drained soil, and a position shaded from the sun for a few hours at noonday gives the best flowering results and prolongs the flowering period of the plants.

The several varieties of Hemerocallis or Lemon Lily can also be transplanted successfully at this season.

I have also had good success in transplanting many other hardy border plants in early autumn. Amongst others may be mentioned the Japanese Spireas, as well as the hardier double and single varieties of Spirea filipendula, both of which are pretty and useful border plants.

Pack the soil firmly around the roots when planting, and water the plants well once if the weather is very dry. Packing the soil firmly will help to prevent the plants lifting, from the action of severe frosts. Another point to be considered in transplanting these, or indeed, any hardy perennial plants, is to carefully pick out from the clumps every vestige of any perennial weeds, such as twitch grass, yarrow, dandelions, etc., as the bane of all perennial borders and border plants are perennial weeds, and there is no better time for eradicating these than at the time of transplanting.

Seed Saving. Many varieties of plants, both of annuals, biennials and perennials, will now be producing seed that might be of service at least in supplementing the supply usually purchased. The saving and drying of seeds, so as to have them of the best quality possible, requires watchfulness nd care. Many varieties, such as balsams, portulacca, aquilegia (columbine) and others require to be picked early in the pod, as if the pods are allowed to stay on the plant until the seed is ripe much of it is lost. In drying seeds never tie them up in close ir-tight bags when first picked, as this plan induces mildew and possibly rot. Either spread the seeds or pods out on a tray or fine sieve and place them in a cool, dry, airy place until they are quite dry, or tie them up loosely in coarse muslin or cheesecloth bags and hang them up in a dry, airy place under cover from rain or heavy dews. Placing the seeds outside in the sun in the day time and removing them under cover at night will hasten the curing and drying of seeds without injuring the germinating property of the seed. Avoid drying seed too near a hot stove, as they are often spoiled in this way. Large seed growing establishments usually have kilns built expressly for drying seed. Even these, built as they are on scientific and practical principles, are oftentimes responsible for the immature and weak germinating power of many seeds that would have been of much better quality if ripened off and dried more gradually.

Seed should always be saved from what have been the best specimen flowers, so as to secure as good a type of flower as the original, if possible. By careful selection of the best typical blossoms of each variety, much can be done toward the improvement of strains and varieties of plants, more especially annuals.

Fig. 2651.

COUNTRY EFFECTS IN TOWN.

THE accompanying illustration gives but a glimpse inside the grounds about a city home, larger than an ordinary city lot, of course, but not so large as hundreds of our modern city residences where the inhabitants have none of nature's beauty. Very few people understand how simple a task it is to build up country life about them. The high board fence covered with ampelopsis looks like a covered building; it screens a vegetable garden. From the drive to the barn is partitioned by a fence of birchbark logs. The drive having a bend, trees and shrubbery to the right cover closely. Under the tree is a footpath with perennials on either side, perfectly wild. To the left, in front of the residence, is the open lawn. This sort of condition is easily brought about on a place 150 x 150 feet. The material used is nothing more than can be selected from any up-to-date nurseryman's catalogue of trees, shrubbery and perennials.—*American Florist.*

SOME FLOWER LEGENDS*

BY

EDWARD TYRRELL, TORONTO.

THIS is the time for holidays, when many of your readers will have the opportunity of taking a month or two months' rest and recreation. There is pleasure in the anticipation of a good holiday. I remember as if it were yesterday when I was an apprentice in London, the proprietor of the house I was in made it a rule that every one of his employes (and there were about one hundred and sixty of us) before going on their holidays should go into his office and see him before leaving. His kind remarks as to our work, and the desire to be remembered to our parents or relatives, and the hope that we would spend a pleasant outing and return refreshed and strengthened was very encouraging. To many he would say, "Where are you going for a holiday and a rest from business? The mind is often better rested by reading, allow me to give you this book," and he would select one from a large supply he always kept in his room, and it would be a good one, not a goody goody tract, but by a standard author. Those of us who have one or more of these books, money cannot buy them. I echo his words to those taking their holidays, "take a number of books with you." What friends you can have, how much information they will give! If you are ignorant they will not laugh at you, if you mistake them they do not get offended. A favorite writer says: "I have friends whose society is extremely agreeable to me, they are of all ages and of every country, they have distinguished themselves both in the cabinet and in the field, they relate to me the events of past ages, and reveal to me the secrets of nature. Some, by their variety, drive away my cares and exhilerate my spirits, and others teach me how to live, and how to die. In return for all their services they only ask me to accommodate them in some corner of my humble habitation." It is good advice, try it, you will be helped as I have been.

My notes this month are on the House Leek (Sempervivium), commin in Europe, called Fous or Fousts in Scotland; Poor Leaf and Hen and Chickens in Devonshire; in other places House Leek and Jupiter's Beard. The leaves, cut or bruised, and applied to burns or stings of bees or wasps afford immediate relief. They are a beneficial application to ulcers and sores, and are esteemed for fevers. In early times, so it is recorded, by growing them on the roofs of houses they would keep the lightning off, and in confirmation of this belief Charlemange issued an edict for their general culture in these words: "Let everyone have the Jupiter's beard on his house to keep off the lightning."

Lilium candidum (white lily). The common white lily is one of the oldest and noblest as well as commonest flowers of the garden, more especially in England. It belongs to a family of plants that has no poor relations. Poets from Homer down have sung its praises side by side with the rose and violet, for its beauty and stateliness, the snowy whiteness of its flowers and its fragrance as to be quite without a rival. It has been claimed as an emblem by nearly a hundred saints. It is a native of the country called the Levant, and as the Levant includes Palestine, it is by no means proper to consider this as the "Lily of the Field" referred to by our Lord in his sermon on the

*This article was written for our August Number.—EDITOR.

Mount (although other flowers were very plentiful, such as Scarlet Martagon or the Lily of Byzantium, white Cyclamens and scarlet Anemones). It is dedicated by the church of Rome to Mary, the mother of Jesus, and it is known as the Madonna lily. In Ireland it is said that travelers can distinguish the houses of Protestants and Catholics when lilies are in bloom by the orange and white lilies. The Romans call it Juno's rose. It seems to have a special charm of its own, so chaste it is, so inviolable in its purity, and on this account we cannot behold the lily without feeling a kind of reverence for the flower mixed with our admiration for its elegance of form and purity of color. To me a garden does not seem complete without this flower, it is all that can be imagined, desirable and perfect in floral form. A great inducement to the cultivation of this species is their ease of culture and their almost perfect hardiness, thriving vigorously in the garden border, where they can remain for years undisturbed.

"Within the garden's peaceful scene
Appear'd two lovely foes,
Aspiring to the rank of queen,
The lily and the rose.

The rose soon reddened into rage,
And swelling with disdain,
Appealed to many a poet's page
To prove her right to reign.

The lily's height bespoke command,
A fair imperial flower;
She seemed designed for Flora's hand,
The sceptre of her power.

This civil bickering and debate,
The goddess chanced to hear,
And flew to save, ere yet too late,
The pride of the parterre.

'Yours is,' she said, 'the nobler hue
And yours the statlier mien,
And, till a third surpasses you,
Let each be deemed a queen.'"

THE GORGEOUS PEONIES.

I WISH to add my mite of praise to what others have recently said in commendation of these majestic flowering plants. I think of all the blooming plants of our gardens these produce the largest, most attractive, most gorgeous blooms and most varied in pleasing colors, and easily rank, when in bloom, as the queen of showy flowers. The herbaceous peonies are perfectly hardy and will endure many degrees below zero when properly planted. They are strong growers, requiring a strong, rich soil, and are succeeding to perfection all over the country, especially in the west.

The plant is a gross feeder and when transplanted should have a liberal allowance of strong rotten manure worked into the soil, planting four inches deep, which will settle to three inches. They should be mulched with manure after planting. The peony will remove at any time, even in full growth, which is, however, not to be encouraged. Some of our customers beg to get plants even when in bud, which we never agree to.

The best time to plant peonies is in early fall. Then they are more dormant than at any other time of year. The old stems should be cut off close to the roots, for when left on they have a tendency to heave out of the ground by action of frost. Be sure and mulch them after planting. When planted in fall they do much better the next season than if transplanted in the spring of the year. Peonies do not need frequent removal, but will succeed in the same spot for many years after being planted, and if once in several years they are well fertilized they will last one's lifetime.—*American Florist.*

FLOWER AND PLANT LORE

BY

EDWARD TYRRELL, TORONTO.

THE present month brings with it unspeakable signs of autumn, one of its chief beauties consisting in the change which takes place in the tints of the foliage of trees and plants. The garden begins to assume a somewhat ragged appearance, many of our summer flowers are beginning to lose their beauty, but the flora of this month, though not so extensive, is not without interest. One attractive species is the

PHLOX (from Phlox a flame). This plant is a native of the northern part of this continent, and is one of the many perennials that deserve our admiration. There are few flowers amongst the large variety which have been brought by collectors from distant regions and naturalized in our gardens more deserving of attention than this pretty native. Nearly every species of this somewhat extensive genus is perfectly hardy; it is well suited for various purposes in the tasty arrangement of a flower garden, the height to which they grow, the colors of their blossoms, for we find them in nearly shade of color, and the flowers growing in terminal spikes and prominent colors, make them a desirable contrast to the almost universal similarity of autumnal flowers, both as to form and color. They can be increased with a certainty of preserving the distinctive characteristics of the plant by the divisions of the roots.

DRUMMONDI is an annual variety of the Phlox, and esteemed one of our most useful annuals; it was found in Texas in 1835 by Mr. Drummond, a gentleman engaged in collecting new plants for the Glasgow Botanical Society. He died with fever in Cuba in the prime of his life, and Sir W. J. Hooker, to preserve the memory of this gentleman's labors, named it Phlox Drummondi.

ACONITUM NAPELLUS (Monkshood, a native of Northern Europe). In Monastic herbaries it was known as Odin's hood, Thor's hat, Friar's cap, and Helmet flower. Afterwards it became known as Monk's hood. It has another name, Wolf's bane, or Wolf's poison, which originated, as Gerard says, from the fact that hunters which seek after wolves put the juice thereof into raw flesh which the wolves devour, are killed. Every part of this plant, from pollen to root, is poisonous. It's handsome leaves and blue flowers make it a favorite, but it should not be grown in the garden where there are children in the family.

Shakspeare thus refers to it:

Let me have
A dram of poison, such soon spreading gear
As will disperse itself through all the veins,
That the life weary taker may fall dead
And that the trunk may be discharged of breath.

ABOUT GLADIOLI

NOW to get the most enjoyment out of a collection of gladioli is something worth knowing. Perhaps my experience may be helpful to another. For some years I gave up raising gladioli; they did not fit in well with my other plants; they did not always blossom; they faded soon and seemed to be altogether unadapted to my conditions. Finally I purchased a named collection and planted them in the garden to share with peas and beans and cabbages in the general cultivation. The

result was most gratifying. They grew strong and thrifty. At blossoming time the stems were cut on the opening of the second flower—care being taken not to cut below any side spikes—and brought into the house. Every day the water in the vases was changed, the ends of the stems clipped, and the wilted flowers removed. Treated in this way each stem lasted nearly two weeks and blossomed perfectly to the last bud. Every day added something new and in a short time the house was a glow of color. The changes which the blossoms underwent in confinement, growing more and more delicate in hue, were not the least interesting part of the color feast.

Since that summer, gladioli, even more than sweet peas, have been our chief reliance. We add each season a few choice named bulbs, a dozen or so of Childsi and Lemoine, and thus have come to have several hundred bulbs. They still get only garden culture, except that when setting them I put into a hole a mixture of leaf-mold and mulch with a very little litter from the hen house. This is mixed with the sandy soil. It gives the plants a good start and they are not so apt to feel the dry weather later on. The bulbs are set out at different times, so that the season of bloom extends from the middle of July or earlier till near the time of frost. We have come to look forward with longing to their blossoming time. They constitute in our own home a perpetual supply of sunshine, and they carry it to the sick, the shut in, the flowerless poor, the weary girl behind her desk in the city, the tired mother with her many cares, and to the aged who are too feeble to cultivate flowers but still love them passionately. They are our floral bank which never fails to honor a draft.

In the autumn, when they are taken up, the bulbs are grouped and labeled in accordance with the planting record and the notes kept through the summer. Selections are made for the friends to whom we wish to send a gift or with whom we make exchanges, and the body of bulbs is put away in condition for the spring planting. Any plant becomes interesting when you make a special study of it, and the gladiolus is an excellent subject to begin with.—*Vick's Magazine.*

DAHLIAS.

WHERE dahlias are propagated from cuttings the dry roots may now be placed in a gentle heat to start them. The usual way is to place the tubers on the bench or table or in shallow boxes, and cover them with soil to the crown. The cuttings are taken when the shoots are some three or four inches long, and put in sand to root. Two or three buds should be left below the cut to produce more shoots, from which cuttings may be taken in the same way, and the process repeated till as many cuttings as may be wanted are procured. In this way a single plant or clump of tubers may be made to produce a great number of cuttings. Such amateurs, however, as grow plants in a small way can get as many plants as they want by dividing the tubers after they have begun to grow, and in this case the tubers need not be encouraged to grow for some time yet, at least the double flowered varieties. We rarely get perfect blooms from the double varieties before the approach of cool weather, and little is gained by starting them early. Something may be gained, however, by starting the single flowered varieties in March, as we expect them to bloom both early and late. Seeds of the single kinds may be sown now.

THE CYCLAMEN

BY

WM. BACON, ORILLIA.

THESE delightful winter and early spring flowering plants have of late years been so much improved that we shall scarcely recognize the small, comparatively insignificant blooms we used to meet with, in the splendid, large, broad-petalled, distinctly colored forms and highly scented types of this flower, now so plentiful. They are now of a very robust constitution, remarkably free blooming, and in every way well adapted to house cultivation, and as house plants have few equals, if any superior. Few flowers respond with such a generous profusion of bloom, to moderate care and cultivation, as does this plant. This fact is impressed upon me more every

FIG. 2652. THE CYCLAMEN.

season as I look upon the magnificent array of color, smiling as they stand upon the benches, clean, bright and cheerful, like the refreshing greetings of the sunbeams after dark and dreary days. It gives a thrill of real delight, such as the millionaire cannot abstract from the intrinsic worth of his gold, as we approach them and count, as I did this morning, on one plant nearly 100 perfect blooms, and buds uncountable, nestling at the base of the leaf stems and on the crown. To the ladies, let me say, this attractive and very useful plant, flowering from October till August, is very easy to manage, even to growing from seed. Sow in a small box about two inches deep, in a soil of a light nature, press the seed its own depth into the soil with a flat piece of board or shingle, and cover lightly. Place in a temperature of 55 degrees or thereabouts, cover with glass for a while in order to keep slightly moist, not wet. After a while lift the glass and keep evenly damp. You will soon see the bulblet appear.

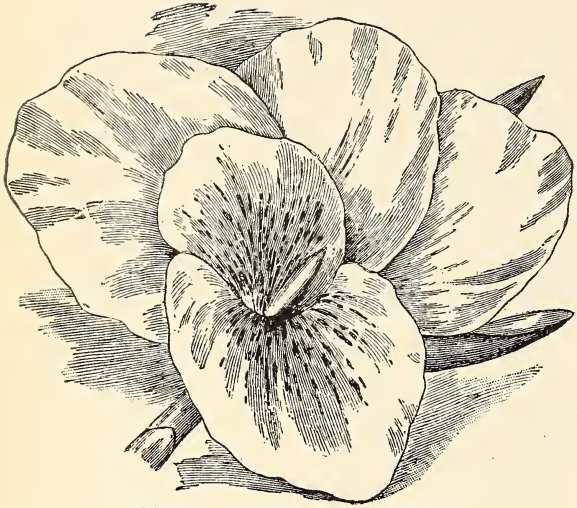
Then as soon as they have two leaves, if they need more room prick off into another box farther apart, or better still, into small or two inch pots singly. This is the better way, not five or six in a pot. Grow on and give plenty of air, and don't let the hot sun strike them directly, as they are fond of shade, especially in the hot days of the fall and spring months. Repot as soon as the roots move well to the pot, and let the soil have a little well decayed manure mixed with it; drain the pots well. Keep them growing at 55 to 65 degrees and will soon be rewarded with bloom that will surprise you.

Keep off green fly and thrip. Watch them closely on the younger leaves, and if they appear, ask a friend who smokes to throw a whiff or two under the leaves and the flies will fall so that you can easily destroy them.

If you wish to keep your corms till a second season, don't dry them out to a withering degree, but simply let them rest with sufficient life in the soil to give nourishment to the bulbs in which lies all the vitality for a greater abundance of bloom next season. Start them afresh by watering more freely any time from August to October, as you may wish them in succession; also grade the temperature, as you may wish to keep back or hasten into bloom.

EXPERIENCE WITH CANNAS

G. A. WOOLSON.



FLOWER OF CANNA AUSTRIA,
TWO-THIRDS NATURAL SIZE

FIG. 1653.

THE advent of Canna Austria marked an important era in the culture of these semi-tropical plants, which are now considered so essential to every lawn. The foretelling of its glory impressed me favorably, hence a fine specimen was duly installed in a prominent bed in my garden. Somewhere I had read that the variety "did best in poor soil." This I did not in the least believe, for I had had long and intimate acquaintance with cannas of many kinds and had fully demonstrated their ability of appropriating for personal glorification the desirable elements in the richest and strongest soil which the ingenuity of man could concoct. Consequently I expected to break all previous records of the new acquisition.

Cow manure was liberally spread over the bed and the soil forked over and thrown out. Just what the excavation was filled with I positively refuse to tell. However, the reservoir was to serve as bank account for the plant to draw from later on. The soil was then thrown back and the bed got in shape. All went well for a while. Fine fresh leaves unrolled rapidly, but after a little they blanched strangely, turned brown and withered.

"Drench it with plain straight water," was the advice given, but of no avail. The roots had struck the reservoir, and deluging the soil only choked them with a bigger drink. My "centre piece" was facetiously commented on. The roots were lifted in the fall, and as they were sound, but not vigorous, were ensconced in a 10-inch pot, given indifferent soil and placed in a sunny bay window. Liquid fertilizers were dutifully passed on to more appreciative cannas, nevertheless nothing but leaves resulted; these were good to look at, and Madame Crozy and Gen. de Miribel made up all deficiency of bloom, showing what a canna should and could do indoors in midwinter.

Last spring I cut down the stalks and divided the root growth into thirds; two of these were repotted in ordinary soil and a moderate allowance of liquid fertilizer given occasionally, but out of door pot culture was no more fruitful than that indoors, in fact the foliage was less luxuriant, owing to the more rapid evaporation of moisture in the open air. The third section was located in the poorest vein of soil my garden could furnish; some water was of course given, but assuredly the subject was not "fussed with." As a result thereof there stands in that unusually barren spot a robust plant stretching its glorious spikes of clear yellow to a height of six feet. Individual flowers measure fully six inches across, and the larger petals are fully two inches wide. Obviously Canna Austria is a law unto itself, a fact de-

monstrated at the expense of a little personal conceit.

A dwarf canna (Nellie Bowden) growing close by, looked quite like a small edition of its "lily-flowered" superior. It is the only canna which might properly be called dainty looking, and it is that in leaf and flower, as both are small, trim and slender. The color is a little deeper yellow and lacks the clear transparency of petal; the two smallest petals are stained with red much deeper than the faint dots of Austria. This is also a free bloomer out of doors, but has never done anything indoors. The extreme height thus far attained is 38 inches.—*Am. Agriculturist.*

THE CRIMSON RAMBLER ROSE.

BY T. H. RACE, MITCHELL.

"I AM sure," says the editor of National Stockman and Farmer, "that many readers of this paper have this beautiful rose but they do not all have it, as they sometimes drive in to my place to see the Ramblers in bloom. About four years ago I planted a dozen of the Ramblers, and now they make a grand showing on the green lawn. What I particularly want to ay about this rose is that once you have it started it will take care of itself, and is insect and disease proof, which can be said of very few beautiful flowering plants. We all love beautiful flowers, and if we can have them without too much nursing and petting we want them, and of that class the Crimson Rambler is one of the best."

Every word of the foregoing is true about the Crimson Rambler. But even this thing thing of beauty is likely to have a popular rival in the more delicate Dorothy Perkins. I have two of the latter blooming this year; one-year-old plants planted a year ago, and they are pleasing me very much. The stock is more slender in its growth than that of the crimson, and the foliage is somewhat finer and brighter green. The individual bloom, a soft pink in color, is no larger than the crimson, but it is finer and fuller, and the clusters are quite as heavy. Being slender in growth, it is easily laid down, and mine came through the winter with no covering except the snow.

FALL PLANTING OF ROSES.

BY

T. H. RACE, MITCHELL.

I AM asked if I would recommend planting Rambler roses in the fall, or any other class of roses. I decidedly prefer fall planting for all out-door roses. Last fall I planted a number of Ramblers, crimson and pink, two-year-old bushes, and left shoots two feet long. This year they are covered with a mass of bloom, as if they had not been moved. This spring I planted a row of twenty crimsons in very strong ground. They were strong two-year-old plants, and are doing well, but not blooming like those planted in the fall. My experience is the same with all other kinds of roses.

OUR OUTCAST GARDEN FOLK

"After all, nothing prospers like weeds, all the world over;
Nought makes them rue, neither cold nor heat nor drought dismays them ever."

ON a bright day in spring, while wandering round one's garden, it is impossible not to give a thought sometimes to the poor outcasts, who would like to live in it, but who, for the most part, are destined to a very different fate—the burn-heap of the weeds. It may be that there are not so very many of them about, for the weather may have been dry and the season late, but they are only biding their time; the first warm shower will find them pushful as ever, and there will be plenty of enemies to challenge them at the gate.

Scores of very particular people there are, who simply cannot pass a dandelion without rooting it up, or a daisy (especially in the lawn) without longing for a fork. Nettles of all sorts, even the pretty white and yellow ones, as also do thistles, vetches, and spurges, all of which are very fond of intruding into gardens; they are known to be troublesome, and have bad characters.

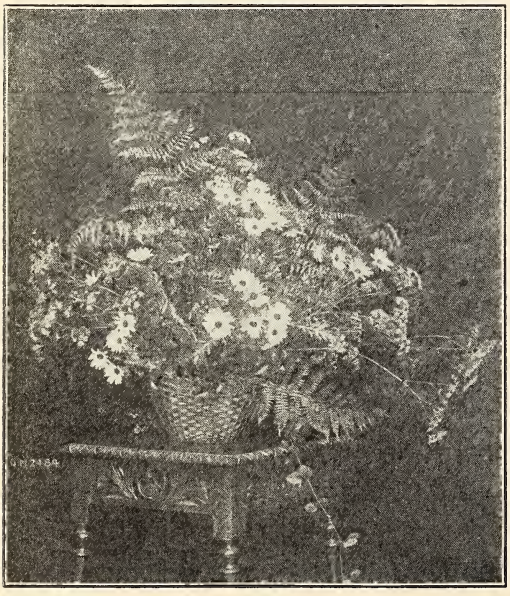


FIG. 2654. AN ARRANGEMENT OF OX-EYE DAISIES, WILD PARSLEY AND FERNS.

The measure of morality, as applied to plants, seems to vary as much as it does with reference to the human family. The pariah of one place becomes the pet of another. Like the question of how many wives it is expedient for a man to have at a time, much depends on latitude and longitude. In different parts of the country, in the same week I have heard the same plant—the grape-hyacinth—spoken of as "that pernicious weed," and "the precious little blue flower that lives in rockeries." When and where make all the difference; it is possible to have too much even of a good thing, and numbers of pretty common flowers, by making themselves too cheap, earn the opprobrious and scarcely-deserved epithet of "weeds." Marigolds are flagrant offenders; gay in color, and gifted with a pleasant bitter-sweetness, at times they are a plague, and I have myself suffered many things of my favorite oxalis. Only last year it threatened to swamp us in clover, wanting to carpet the rose beds, and make an emerald setting for the geraniums. We rooted it up, scattered it, and dried it in the sun. In vain; it always turned up a short time after, smiling, and apparently unconscious of any check.

To many people weeds have a peculiar fascination. Their very wildness appeals to an instinct of human nature; that is by no means unaccountable, but one has to dive below the surface to understand it. The same Bohemian spark it is that makes us enjoy uncomfortable picnicing and the trials of life in camp; that lends a charm to every kind of sport, and sends the Englishman hunting for wild things all over the

globe. We cannot all of us, in pursuit of new daffodils or orchids, rush after these wildlings, to look for them in their native haunts, or track them in the dim recesses of the jungle; but another field is always open, if we will only look for it. At our feet it lies, and it is well worth exploration. The very best place I know of for studying weeds is one's own garden, and the next best places are other people's gardens. What with winds and wild birds, we need never fear the supply of specimens will run short.

On the whole,, other people's gardens are the most entertaining on account of their variety. Country houses of friends, hotel gardens, and the houses we own for a season affords us opportunities. The weeds vary, of course, with every locality, and most gardens provide something fresh, if it be only a stowaway, that has come from afar, in moss, or litter, or packing stuff. Such errants are misleading, but they add to the excitement of the chase.

It was once my good fortune to own a garden in gravel-land, near a forest. A half filled gravel-pit that had been left in it was a paradise for weeds; never to be forgotten was the way the trefoils, thrincias, and cat's ears flourished in the sunshine. Most beautiful of all were the tufts of viper's-bugloss, its fuzzy green leaves and clusters of brilliant blue flowers, dazzling between the yellow earth and sapphire sky, blue against blue. A chalk garden has many delightful weeds, and so has a garden that owns a stream or lake, all different, with differing ways and scents.

When one comes to think of it, what an untold debt of gratitude we owe the weeds of by-gone centuries. How about those that were good enough to turn into coal, and are now burning for us? A coal-box is not a usual place for the study of botany, but one might do worse than turn one over, now and again, in search of floral impressions. Lignite, of course, is better; being in the transition stage, it is quite easy to pick out little stems and stalks. Two friends, one a geologist and the other a botanist, once took me for a walk, and for fear of being considered a wild romancer, I will not say how many kinds of weeds were recognized in some seams of lignite, brown and black. In fact, had everything we came to not been in a fossilized condition, we could have had an oyster feast out of the rocks, and salad to go with it.

Sometimes in gardens one comes across an unattractive outcast, commonly known as the horse-tail. At sight of this small weed an imaginative mind may take a leap backwards across past æons, and see the horse-tails as they used to be, when, giants in the land, they lived along with the mammoths of the period, the slow-moving reptiles and the silent lizards, half fish, half bird. We must forgive this homely weed its flowerlessness and want of beauty, for the sake of the tales it dumbly tells us.

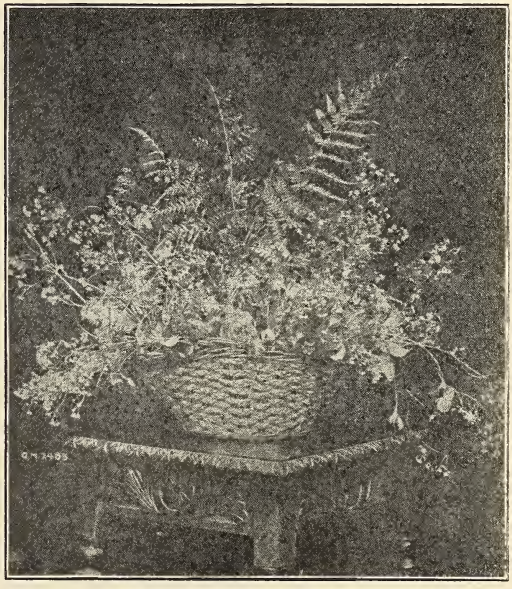


FIG. 2655. A BEAUTIFUL ARRANGEMENT OF WILD FLOWERS.

Others we have to pardon, remembering the many good turns they do for us in the country and in town.

Their role it is, not only to make the lovely more beautiful, but also to beautify the unlovely. Over the hedgerows they scatter showers of gipsy-roses, the lanes they stud with starry stitchworts, white as milk, along with cuckoo-loving campions, lilac scabious, blue chicory, and all the other weeds that lead their lives 'twixt dusty road and meadow grass. No barren space, be it railway cutting, neglected churchyard, or any other vacant spot, is left unfilled, at any rate with leafage.

"Soon is the foliage soft and green
Drifts of hawthorn fall for a s reen."

Through all the changing seasons from spring to winter's fall, the weeds and wildlings are very busy filling gaps and making backgrounds for us. Let us be grateful, and look with lenient eyes even upon our "outcast garden-folk."—*The Gardener's Magazine.*

IVY FOR PICTURE FRAMES.

IVY is one of the best plants to have in the house, as it bears a large amount of neglect and abuse, and gratefully repays good treatment. It is not rare to see a pot of ivy placed where it can be trained around picture frames or mirrors, and thus border them with living green. A good plan is to dispense with the pot, or rather have a substitute for it, which is kept out of sight.

Our illustration shows a picture frame wreathed with ivy after this method. Only a good-sized picture or mirror can be treated in this way, and as such are usually hung so that the top of the frame leans forward, the space between the frame and the wall is available for the receptable for the plant. A pot or pan of zinc, of a wedge-shape, and size to suit the space between the frame and the wall, can be made by any tinsmith. This is to be hung against the wall so as to be quite concealed by the picture, and the ivy tastefully trained over the frame. A rustic frame is better suited to this purpose, as it not only affords better facilities for attaching the stems to the frame, but its style seems better adapted to this kind of decoration than more pretentious ones. Still, a gilf frame may be made beautiful in the same way. There is only one precaution to be used, viz.: Not to hang such a frame over the fire place, for the combined heat and dust would soon destroy the pl nt. Let it hang so that it may face a north or east window. Don't forget the water; the pan holding the plant is out of sight, and, therefore, should be kept in mind.

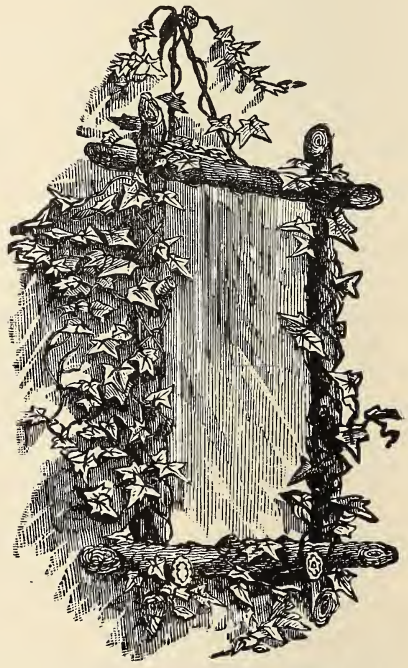
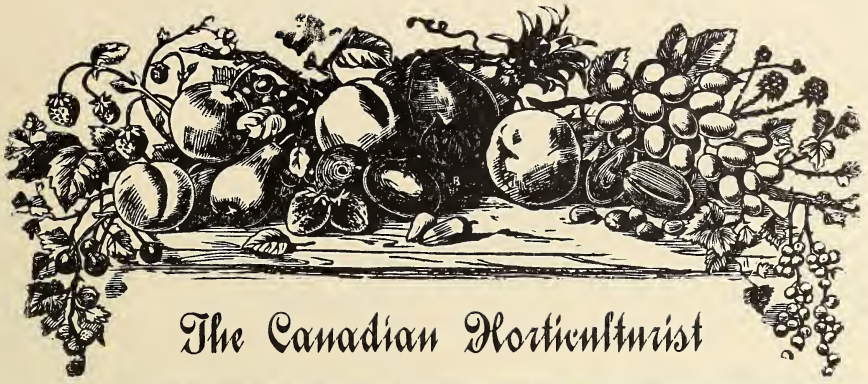


FIG. 2656. IVY FOR PICTURE FRAMES.



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ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

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DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

Question Drawer

WISTARIA NOT FLOWERING.

SIR,—Could you through the columns of your paper give me any information how to make a white Wistaria blossom. It has been planted about ten years against a south wall, slightly under an overhanging roof. I have tried partial roof pruning, and have tried spur pruning as well as less severe top pruning, but no plan seems to induce it to bloom. The plant has a fine healthy foliage but no blossom.

Toronto, Ont. F. W.

Answered by Wm. Hunt, O. A. C., Guelph.

Wistarias are sometimes very fickle and difficult to induce to flower. The overhanging roof mentioned is certainly of no benefit to the plant in this respect.

I would recommend that the plant be well pruned back late this autumn, or still better early next spring, and if possible the plant removed to a more open position. If this —from the age and size of the plant—is not practicable, dig a trench around the plant about 3 feet from the base of the stem. about 2 feet deep and 1 foot in width. Fill this trench with fairly large stones, rubble. or gravel, so as to confine the roots somewhat more than they jrobably are at present. I tried this plan once on a plant of Wistaria that had been planted for eight years without flowering, and it proved quite successful in bringing it into flower. This plant I purchased for a white Wistaria, but it proved to be a worthless variety with short stunted racemes of dull blue flowers.

not worth growing. It was probably the variety known as Wistaria brachybotris, or the short clustered variety.

A good specimen of the white Wistaria is seldom seen, the only one that I know of in this section is a plant growing on the verandah of a house at the northwest corner of Herkimer and Macnab streets, Hamilton. This specimen could be seen flowering beautifully every year in July, and was a pleasing and conspicuous ornament to the residence.

PLANTING PEONIES.

SIR,—I am planting some peonies in the fall, and as the soil is very poor and sandy, would you kindly tell me whether I should replace the sand with some other good soil that would be better for peonies. If not, what kind of fertilizer would you advise me to enrich the soil with, and how deep should I plant the tubers.

London, Ont. SUSCRIBER.

Answered by Wm. Hunt, O. A. C., Guelph:

If the soil is very sandy, it would be best to remove it to about a spade's depth and replace the same with a good admixture of well rotted manure thoroughly mixed with it. Fertilizers would be of very little use in very sandy soil. Each plant should have a space of ground prepared for it in the manner I have mentioned at least two feet equare.

The tubers should be planted so that the tips of the young crowns are about half an inch under the surface of the soil. A mulching of long strawy manure about two inches in thickness placed over the plants in November would benefit them. Remove the mulch in early spring.

OPENING FOR EUROPEAN MARKETS.

Will you kindly permit me to use the columns of your valuable paper to call attention to a number of lines in which I believe an excellent opportunity is offered for the extension of our trade with Germany, Belgium and Holland.

At the present time there appears to be a good opening for trade in fresh, dried and evaporated apples in Germany, where the latter pay a duty of $1.25 per 110 pounds and the former enter duty free. It is true that an act has been passed imposing a duty on fresh fruit from Canada, but it has not been brought into force, and will only become operative by Imperial proclamation. Large quantities of evaporated apples from the United States are sold annually in Germany, and as the quality of the Canadian goods is admitted to be better, there is no reason why we should not be able to compete with the Americans.

In Holland only fancy evaporated apples are wanted. The duty is 5 per cent. ad valorem for both fresh and dried fruits.

Belgium will take considerable quantities of both dried and fresh fruits, particularly Spy, Baldwin and Greening apples in boxes. Fresh apples are free of duty, but 10 per cent. ad valorem is collected on dried and evaporated goods. Canadian cheddar cheese, if mild, will sell even in competition with the best Holland. It would bring about 20 cents per pound retail, leaving an ample margin for profit after paying freight and commission, and the duty, which is slightly over one cent per pound. It is particularly to be noted that only a mild cheese is wanted. Belgium takes annually 23,000,000 to 32,000,000 pounds of Dutch cheese, 6,500,000 pounds of Swiss Gruyère, and 2,100,000 pounds of fine cheese from France. Practically none is made in Belgium. Tinned meats, game, poultry and tinned tomatoes are also in demand.

If Canadians are to secure a share of this trade they will have to get out and "hustle" for business. The merchants as well as the consumers of Belgium and Germany are very conservative in their tastes and methods, a statement that we often hear but do not fully appreciate. Americans and Canadians will buy and test a new article simply because it is new, but with the European consumers the opposite is the case. The merchants over there have their trade established and are content. Why should they change? We must show them that it would be to their advantage to do so. In this connection I desire to emphasize particularly the advisability of Canadian shippers sending over liberal samples of their food products for distribution. They will find it profitable to do so, and to quote prices freely. At first goods would have to be shipped on commission, but when a footing is gained business can be done on a cash basis. It is, of course, necessary above all things that goods shipped shall be carefully packed and true to sample, as this is the only way to gain and hold the confidence of the merchants.

It may be mentioned that the Canadian agent in Belgium, Mr. D. Treau de Coeli, 75 Marche St. Jacques, Antwerp, will be glad to answer inquiries and to give all the assistance in his power to enable Canadian shippers to make satisfactory connections in that country. If liberally supplied with samples, he will see that these are properly stored and distributed to the best advantage as occasion offers. Among the firms who may be consulted, and who will handle consignments on a reasonable commission, might be mentioned Alfred B. Steffens, Hamburg & Luisenhof, Germany, and J. Tas, Ezn, and the North Atlantic Trading Company, both of Amsterdam, Holland.

W. A. MACKINNON,
Chief, Fruit Division.

DUCHESS APPLES IN GLASGOW.

Mr. John Brown, Dominion Government Inspector at Glasgow, reports that the first shipment for the season of American Duchess apples arrived there on the 3rd of August in good condition. They sold at prices ranging from 12 to 21 shillings, notwithstanding the fact dealers showed some hesitation in taking such early fruit.

WHAT THE FRUIT INSPECTORS ARE DOING.

Mr. J. J. Philp, Dominion Fruit Inspector of Winnipeg, is coming east and will address a number of meetings in the fruit growing sections of Ontario. There are great possibilities for Ontario fruit in Manitoba and the Northwest, and Mr. Philp hopes that the information he will be able to give regarding the western markets will be appreciated by the eastern growers and shippers. Full instructions will be given regarding the quality of fruit and shape of packages wanted in the west. Meetings have already been arranged for Chatham, Burlington and St. Catharines, and it is expected that others will be held at Walkerton and some other fruit centres. After the meetings are over Mr. Philp will spend some time doing inspection work through Ontario and at Montreal, so as to become thoroughly familiar with the methods practised in the east.

While Mr. Philp is in the east Mr. J. F. Scriver, the Montreal inspector, will take his place in Winnipeg to study conditions and get in touch with the dealers and consumers in the west. Lieut. Vroom, Nova Scotia inspector, who was a member of the Busley team, is now returning to Canada by the Tunisian. After the shooting was over he spent a few days studying the conditions of the fruit trade in the chief British markets, and will be able to take up his work in Nova Scotia with a better understanding of the requirements of dealers and consumers in the Old Country.

Mr. A. McNeil, senior inspector, will have charge of the Fruit Division's exhibit at the Toronto Industrial Exhibition and will also conduct the packing demonstrations.

OUR BOOK TABLE.

American Horticultural Manual—Part II. Systematic pomology, containing descriptions of the leading varieties of the orchard fruits, grapes, small fruits, subtropical fruits, and the nuts of the United States and Canada, by J. L. Budd, professor emeritus in horticulture in the Iowa State College of Agriculture. Illustrated by hundreds of outlines of the leading commercial fruits and nuts. Published by John Wily & Sons, New York City. Price, $1.50.

A most valuable work for the fruit grower, and published at a marvellously low price, considering the immense amount of work entailed upon the author in preparing the technical descriptions.

THE FOREIGN APPLE CROPS.

A Short Crop Everywhere—Higher Prices Than Last Year Should Prevail.

All reports agree that both apples and pears are a short crop in Europe, and that our Canadian stock will be in great demand. A very complete report is just to hand from E. A. O'Kelly & Co., Covent Garden, London, from which we cull the following portions:

England.—There are no crops whatever of English apples this year. The London market, as is well known, is the natural outlet for apples from the home countries. We therefore believe that the London market will be as high as it was last year, and we shall most probably see London speculators take advantage of this, to buy apples in Liverpool, send them to London and realize a good profit, as was frequently done last year.

France.—The Dieudonne district (red apple district), the Charente district (Russett's district), and the Anger's district cannot be taken into account this year. We hear from reliable information that there are no apples whatever in France, and we believe that a few good good American or Canadian apples, such as prime Baldwins, and especially Russets, might be sold with advantage there. Shippers should only send small lots, and only the very best. We are in a position to take charge of shipments for Paris.

Italy has a fair crop of apples, but they will probably all find their way to their usual outlet, that is to say, the south of Germany and Hungary.

Spain has a medium crop, but the bulk of same will be imported into France for cider making.

Germany.—There is a good middling crop in that country this year, but as the bulk of apples grown there are cooking apples, Germany will be open this year again to receive large quantities of prime red apples, and we feel sure results will give shippers satisfaction.

Holland.—There is a fair crop of apples in Holland, but the quantity of apples grown there is limited.

American and Canada.—As far as we can judge, the crop of Canadian and American apples is not quite so large as last year, but the quality is, if anything, better. We are of the opinion that this year again American and Canadian operators are going to have things their own way. There is really no competition to be feared from apple growers this side of the water. It remains for operators to act in a judicious way, and this season ought to be a good one for all concerned. In consequence of the complete failure of English and French crops of pears, apples and plums, we are sure that early apples will do well. The same can also be said with reference to pears, providing they reach us in good condition.

The editor of this journal is now (August 25) packing a carload of his Bartlett pears and Duchess apples for Glasgow, to go in cold storage on the steamer Lakonia on the 3rd of September. He will report the result as soon as he receives his account sales.

BOOKS FOR HORTICULTURISTS.

FRUIT, FLOWERS, ETC.

Amateur Fruit Growing. Green $0.50
Apple Culture, Field Notes on. Bailey. ... 0.75
Bulbs and Tuberous Rooted Plants. C. L. Allen 1.50
Bush Fruits Prof. A. Card 1.50
Canadian Garden. Mrs. A L. Jack ..... .50
Chrysanthemum Culture. Morton. Cloth .. 1.00
Chrysanthemums, How to Grow ..... .25
Cider Makers' Handbook. Trowbridge 1.00
Cranberries, Cape Cod. James Webb. Paper ..... .40
Cranberry Culture. White 1.00
Crops, Spraying. Clarence M. Weed ..... .25
Dahlia, The. Lawrence K. Peacock ..... .30
Evolution of Our Native Fruits. Bailey 2.00
Floriculture, Practical. Peter Henderson ... 1.50
Flower Garden, Beautiful. Matthews ..... .40
Flowers, and How to Grow Them. Rexford .50
Forcing Book. Bailey 1.00
Forest Planting. Jarchow 1.50
Fruit Culturist, American. Thomas 2.50
Fruit Grower, Practical. Maynard ..... .50
Fruit Harvesting, Marketing, etc. F. A. Waugh 1.00
Fruit, The. P. Barry 1.50
Fumigation Methods. Willis G. Johnson ... 1.50
Fungi and Fungicides. Clarence M. Weed. 1.00
Garden Making. Prof. L. H. Bailey 1.00
Grape Culturist. A. S. Fuller 1.50
Grape Grower's Guide. Charlton ..... .75
Grape Growing and Wine Making, American. Prof. George Husmann 1.50
Greenhouse Construction Prof. L. R. Taft. 1.50
Greenhouse Management. Prof. L. R. Taft. 1.50
Horticulture, Annals of. Prof. L. H. Bailey. 1.00
Horticulturist's Rule Book. Prof. L. H. Bailey ..... .75
House Plants and How to Succeed with Them. Lizzie Page Hillhouse 1.00
Insects Injurious to Fruits. Saunders 2.00
Irrigation Farming. L. M. Wilcox 2.00
Lessons with Plants. Bailey 1.10
Mendel's Principles of Heredity. Bateson .. 1.30
Nursery Book. Prof. L. H. Bailey. Cloth . 1.00
Nut Culturist, The. Andrew S. Fuller 1.50
Peach Culture. Fulton. Revised edition ... 1.00
Pear Culture for Profit. Quinn. New and revised edition 1.00
Plant Breeding. Bailey 1.00
Plants, Handbook of. Peter Henderson. New enlarged edition 3.00
Plants, Propagation of. A. S. Fuller 1.50
Plants, Your. James Sheehan ..... .40
Plums and Plum Culture. F. A. Waugh 1.50
Principles of Fruit Growing. Prof. L. H. Bailey 1.25
Pruning Book, The. Prof. L. H. Bailey 1.50
Quince Culture. W. W. Meech 1.00
Rose, The. Its Cultivation, Varieties, etc. H. B. Ellwanger 1.25
Rose, Parsons on the 1.00
Small Fruit Culturist. A. S. Fuller 1.00
Spraying of Plants. The. E. G. Lodeman .. 1.00
Strawberry, The A B C of the. T. B. Terry A. I. Root ..... .50
Strawberry Culturist. A. S. Fuller. Illustrated ..... .25
Survival of the Unlike. Bailey 2,00
Vineyard at Lakeview. My ..... .50
Woman's Hardy Garden, A 1.50

LIVE STOCK.

American Standard of Perfection 1.00
Artificial Incubating and Brooding. Cypher .50
Cattle Breeding. Warfield 2.00
Feeds and Feeding. Henry 2.00
Horse Breeding. Sanders 1.50
Horses, Cattle, Sheep and Swine. Curtis ... 2.00
Pigs, Breeds and Management. Spencer ... 1.00
Stock Breeding. Miles 2.00
Success with Poultry 1.00
The Domestic Sheep. Stewart 1.75

VEGETABLE GARDENING.

Asparagus. Hexamer $0.50
Cabbage, Cauliflower and Allied Vegetables. Allen ..... .50
Vegetable Gardening. Green 1.25

GENERAL AGRICULTURE.

Agriculture. C. C. James ..... .30
Chemistry of the Farm. Warington ..... .90
Fertility of the Land. Roberts 1.25

Any other book on Agricultural topics will be procured at lowest price.

Address all communications to

G. C. CREELMAN,
Parliament Buildings, Toronto.

SHETLAND PONIES

Real Shetland ponies, says *Country Life in America*, are scarcer than most persons imagine. At last accounts there were only a couple thousand, roughly speaking, on their native isles, and they are rapidly being exported or spoiled by the admixture of other and larger breeds. There are comparatively few pure Shetlands in this country and many of the ponies offered for sale by dealers as such are really half-breeds or Iceland ponies.

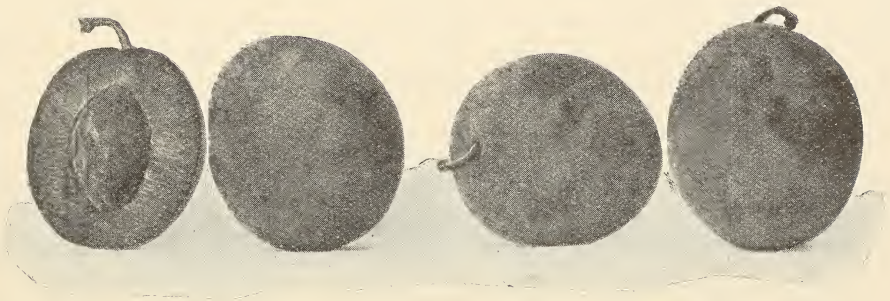

Fig. 2657. Shropshire Damson.

THE
CANADIAN HORTICULTURIST

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SHROPSHIRE DAMSON

ORIGIN: England. A variety of the old Damsons from which class the Domestic plums of Europe are supposed to have originated.
TREE: Vigorous and very productive.
FRUIT: Small, one inch long by seven-eighths broad; form, oval; color, dark purple with thin blue bloom; stem, half an inch long, set in a very shallow depression; suture not traceable.
FLESH: Greenish in color; texture fine, melting; flavor, acid, becoming mild when very ripe; pit a partial cling.
QUALITY: Good for cooking, of no value for dessert.
VALUE: Market, very good.

FOR many years we have had this plum growing in our experimental grounds, and esteemed it of little value on account of its small size. Of late, however, it has risen in our estimation because of its value for culinary uses. For preserving, its small size is not a serious fault, especially since a plum does not need peeling and is not stoned, so that for domestic uses this plum, which has long been a favorite, bids fair still to hold a place in spite of the many new introductions. Indeed, there is a growing demand for this little plum which is not met by the supply, and we doubt not that it would pay to extend its cultivation, for it is a good shipper and could be sent to our northwest markets.

The Damsons, as a distinct race of plums, have been on record from time immemorial. By many students of horticultural science they are believed to be the stock from which all the finer domestic plums of Europe have originated. There are several varieties of the Damsons, but the one under consideration is an old English variety and one of the favorites. A fruit grower of Northern Missouri says in the Kansas report of 1900:

"From observation, I believe that the Damson will be the best domestic plum here for profit, and for that reason I have planted more of them than of any other variety. After them are those of similar habits, and that seemingly have Damson blood in them, such as the Richland. Of the Damsons I have fifty Shropshires, fine growers, and they bid fair to bear young; also I have fifty common Damsons."

We would be pleased to hear from any readers of this journal who have had experience in growing the Shropshire either for home use or for market.

Mr. E. D. Smith, M. P., Winona, one of our foremost fruit growers and shippers, says:

I regard this as a good variety for growers to plant. There is always a certain demand for Damson plums, and I think there

would be still more if they were more widely known. It is also an excellent shipper to long distance markets, which is a feature that should not be overlooked seeing that so much of our fruit business will have to be done with distant points.

Mr. Harold Jones, our experimenter at Maitland, says:

This plum is unknown by this name in our district. The so-called Blue Damson is hardy in wood and bud, but a shy bearer. Plum of poor quality.

Editorial Notes and Comments

MR. THOS. PEART, father of our experimenter, Mr. A. W. Peart, of Freeman, Ont., passed away on the 4th of September last.

THE BRITISH APPLE market seems to be rising instead of declining, as the season advances.

PLUMS were in great demand in England this season. Some cases of about twenty-two pounds' weight have sold as high as $2 each, while peaches in cases of three dozen have brought as much as $3 each.

THE APPLE MARKET is in an excited condition, owing to the unusual failure in England and on the continent. Growers in Ontario ought to get at least $2 a barrel for the fruit in their orchards.

CHICAGO is an excellent market for Canadian Northern Spy. Immense quantities are stored annually in the cold storage houses there, and held until the following spring at a temperature of 33 degrees, or in some instances 31 degrees.

BARTLETT PEARS should be held at a temperature of 32 degrees F. Experiments on this point are in progress by Prof. Reynolds, of the O. A. C., Guelph, which we will publish as soon as completed.

A FORTY POUND BOX is a very suitable package for either pears or apples; that is, a box containing 40 lbs. of fruit. For pears the box we are using for apples this season, 9 x 12 x 18 (inside), will do; but apples are lighter in weight, and the net weight of the same boxful of them is only 37 lbs.

FOR BARTLETT PEARS we have found a half box very suitable for export, measuring inside 5 x 12 x 18, and taking the fruit two deep. These cases have netted us from 75c. to $1.

THE PRINCIPAL VARIETIES of French pears put upon the British market are Williams (Bartlett), Glout Morceau, Beurre Hardy and Duchess.

FOR EXPORT FROM ONTARIO we have found Howell, Duchess, Bosc, Triumph de Vienne and Anjou excellent. The Bartlett is risky, but all right if landed in good condition.

A LONDON FIRM (England) says of the Bartlett pear: We certainly think that, seven years out of ten, there will be an opening here for this variety, provided it arrives clean and in good condition.

AT WALKERTON the principal varieties of pears shown are Clairgeau, Duchess, Anjou, Winter Nelis, Sheldon, Kieffer, Boussock and Flemish Beauty.

POULTRY IN AN ORCHARD is a wise provision against codling month. Mr. Sherrington, Walkerton, has about one acre fenced off for his chickens, and the apples in this

part seem to be almost entirely free from worms. The pure bred Plymouth Rock is his favorite.

CANKER WORM is very troublesome in some parts of Ontario. Spraying with Paris green is effective only if done when the worms are very small. The best remedy is to cut strips of heavy paper, fasten one as a band around the trunk of each tree, and smear with printers' ink. If this is done in October, and kept sticky until frost, and again in April and May, the female (being wingless) will be unable to climb the tree to deposit its eggs.

THE HILEY PEACH, of Georgia, was awarded the Wilder medal at the recent meeting of the A. P. S. at Boston. This medal is given only to one new fruit each year, the one shown the committee which possesses the most decided merit.

PROF. CRAIG, speaking of "The Ideal Fruit Growers' Home," said, in part: "To secure the ideal fruit grower's home let one give attention first to the site, so that he may enjoy beautiful scenery that shall relieve the monotony of daily toil. Let the home be dignified, of simple beauty, without gingerbread ornaments, and the ideal home should be built so as to save steps. With a modern system of lighting, rural telephone and rural delivery, are we not enjoying the comforts of the city without its distractions? But what is more important is the family life within the house, the harmony that results from the expression of each individual's life with due regard to the others of the household."

TO VISIT THE VARIOUS FRUIT DISTRICTS.

IN the present issue the editor begins a series of notes on his visits to the various fruit districts of Ontario. His plan for 1904 is to seek a personal interview with the more prominent fruit growers or gardeners in some one district each month, to secure photographs of their orchards, homes and faces, and to gain from each part of our country those pointers which seem to be of interest or profit to other sections.

ENCOURAGING TO APPLE GROWERS.

A FEW years ago many were so utterly discouraged with the low prices of apples that they were rooting out all their trees. Now the situation is reversed, and the apple is the most valuable product of the farm.

A British correspondent of the Farming World writes:

Canadian apple growers ought to have a successful season, for the supply of home-grown fruit in this country is extremely short. There are many orchards which will yield practically no fruit at all. This applies equally to eating, cooking and cider apples, and in many of the poorer homes the apple pudding, which is a favorite dish, will be missing from the table. Not only is the apple crop here short, but I understand that on the continent of Europe too there are hardly any orchards yielding up to the normal. This is especially the case in Normandy and Brittany, whose far-famed apples this year will not be in great evidence. A well-known cider manufacturer over here has been scouring the country for the past three or four weeks in an endeavor to buy apples, but up to the present he has not yet obtained sufficient for his requirements.

The coming season ought to begin earlier than usual for Canadian apples, while prices too bid fair to be on the upward grade.

W. Dickhuth & Sohn, of Hamburg, write:

As the new season is approaching, we take great pleasure to inform you that our home crop of apples is a failure. It is a matter of fact that we can grow no more table apples in this country for years, but this year we are even without the cooking varieties. The heavy snowstorms just at the time the apple trees were in bloom has destroyed them. Although we shall want

our requirements from your country, nothing but the first grade should be shipped, apples quite clean, free of spots and scabs.

THANKS.

THE editor desires to thank Prof. H. L. Hutt, of the Ontario Agricultural College, for his kindness in reading proof of manuscript left for the Journal during the absence of the editor in Europe, and in adding to the Notes and Comments and to the other matter according to his good judgment; also to thank Mr. G. C. Creelman and Mr. T. H. Race, members of the editorial committee, for their kind assistance during his vacation tour.

A GOOD EXHIBIT.

OUR fruit stations sent in a very large and creditable exhibit to the Industrial this year, and yet, among so large and yearly increasing a list of varieties it is surprising how few are really desirable for any one district. The decision of the board that next year the experimenters must divide their exhibits so as to show the kinds that are valuable, separately from those that should be discarded, will make the exhibit of far greater value.

In Mr. Hillborn's collection of peaches we noticed some wonderfully fine samples of the Fitzgerald. With us at Maplehurst this peach has not equalled the Crawford in size, and, being of nearly the same season, we have not commended it very strongly. These samples, however, were so large and fine that they surpassed even the Early Crawford. The Wickson plum in his collection was larger than that shown by Mr. Mitchell, our plum specialist, but this simply shows that in Essex this plum is a little earlier and possibly succeeds a little better than it does in the County of Grey. At Maplehurst this plum is showing up grandly this season, and if, as the tree increases in size it also becomes more productive, it will be one of the finest of the Japans. When fully ripe it is delicious eating, and in size it certainly beats them all.

In Mr. Dempsey's collection of apples from Trenton, we find, as usual, the Ontario, Stark, Ben Davis and Fallawater prominent, although he acknowledges that the Fallawater is rather disappointing in productiveness. There are over 150 varieties in Mr. Dempsey's collection, rather a bewildering lot to the novice who wants to know what he ought to plant. Next year, when separated into classes, it will be exactly what such a man will wish to see and study.

Mr. Jones, of Maitland, shows a fine collection of the hardier varieties of apples and plums. Among the apples we notice good samples of N. W. Greening, Milwaukee and Mcmahon White.

In Mr. Caston's collection, from Craighurst, among many other kinds we observed the Shackleford and the Peerless, western varieties of some promise. His Alexanders and Baxters were especially fine, showing them to be adapted to that section.

Mr. Huggard's exhibit from Whitby, was large, but needed such classification as will be made next year in order to be of real value.

Mr. Mitchell's splendid collection of plums from Clarkson, Mr. Pettit's extensive collection of grapes from Winona, Mr. Peart's samples of commercial pears from Burlington, and Mr. Sherrington's commercial apples from Walkerton, all alphabetically arranged, are also deserving of special notice.

The whole was under the able superintendency of Mr. W. M. Orr, of Fruitland, Ont.

FRUITS THAT WILL PAY.

THE market conditions in Ontario are changing so rapidly that it is only by the most intelligent planting and the top grafting of orchards already planted that the fruit grower can keep up with the de-

mands of the trade. Ontario is a wonderful fruit producing country, and it did not take many years for it to produce more peaches, plums and grapes than its own markets could take. This year these fruits have reached the lowest prices upon record, and in many instances the grower has received back less than cost, and has found it better to let his fruit waste than gather it. Fortunately just at this point the cold storage facilities on the ocean and the almost unlimited markets of the great northwest are affording an outlet at annually advancing prices. It will henceforth pay our fruit growers to plant only such fruits in quantity as will carry well to distant markets, and to plant sparingly of many old but tender favorites, such as early apples, early peaches and tender fleshed plums, and, where possible, to top graft old orchards of such fruits to sorts better suited to our changing conditions.

FEWER VARIETIES.

MOST of our orchards are filled with all the varieties that were offered by the agent who sold the trees; they were not planted with an expert knowledge of what the markets required, and consist of so many kinds that in making up shipments for export it is now found almost impossible to make up straight car lots of any single variety. Herein lies a great mistake, for even when neighbors combine to make shipments they find it necessary to mix the kinds and the returns are considerably lessened in consequence.

FRUIT GROWING NORTHWARD.

AN important meeting of our fruit experiment station board was held on Wednesday of the last week of the Industrial Fair in the Farmers' Institute tent. Suggestions were received from the experimenters and also from the executive of the Ontario Fruit Growers' Association regarding the best means of extending the work. A proposal to have a testing station at Powassan brought out a discussion of the advisability of encouraging fruit growing in the sections of country lying north of the Georgian Bay and known as New Ontario. If it were wise to do this it is claimed that the station should be placed farther north, at such a place as New Liskeard, for example, which is situated on the line of the railway and in the centre of a large and growing settlement of people from Old Ontario. Some thought it foolish to encourage the planting of fruit trees of any kind in a country where the conditions were not favorable to the best success; but, on the other hand, it was pointed out that there were varieties which would succeed, and a testing station could soon find these out and thus save the farmers a great many dollars which would otherwise be wasted in buying varieties at random from travelling agents.

Finally it was decided to appoint Mr. G. C. Creelman and Mr. L. Woolverton a committee to investigate the matter and report at the next meeting of the board.

Mr. Thos. Southworth, Director of Colonization, says of the Temiskaming section: "I found things in the Temiskaming country in good shape. The towns of New Liskeard and Haileybury are growing very fast. The latter was at a standstill for several years, but owing to the building of the government railway through that point business is brisk. I counted from 30 to 40 new frame buildings in course of erection when I was there."

A HORTICULTURAL BUILDING NEEDED AT THE INDUSTRIAL.

AT the meeting of the Board of Control above mentioned, complaint was made by the secretary that the exhibit of the fruit stations was not distinct enough

from the general exhibits of fruit growers to enable fruit growers and farmers passing through to appreciate its real value.

The subject was debated with much interest, and every one concurred in the great importance of a better and more distinct installation of the exhibits of our fruit stations. One object of their establishment was to point out to planters the varieties desirable in each section, and another was to warn planters against those found worthless or otherwise undesirable. Now, if we can secure proper accommodation at the Industrial, we will be able to make separate sectional exhibits, showing in one class the varieties that may be planted with profit; in another, those desirable only for home uses, and in another those which are a failure, or for other reasons not worth planting. If each station makes these divisions, and arranges each class alphabetically, there will be no exhibit at the fair of more interest to our farmers.

Mr. A. McNeill, fruit inspector from Ottawa, was also present, and regretted that at present he could find no accommodation in the space set aside to the fruit experiment stations for his demonstration of fruit packing for the export trade. He had two assistants at work wrapping pears and apples and packing them in cases, and this exhibit was of great importance to fruit growers, but he was compelled to set it up in Machinery hall. He hoped that another year the Board of Control would be able to provide space for this.

A special committee was appointed to prepare plans for a fruit growers' building, seek a site, and report to the annual meeting of the Ontario Fruit Growers' Association, which meets in Leamington next November. In this committee the following persons represent the experiment station board: Messrs. G. C. Creelman, W. M. Orr and Prof. H. L. Hutt, and to represent the Ontario Fruit Growers' Association, Messrs. W. H. Bunting, A. McNeill and L. Woolverton.

FRUIT GROWING IN THE NIAGARA DISTRICT.

OUR friend, Mr. W. L. Smith, editor of the Sun, has been through the Niagara fruit district, and is quite enthusiastic over its capabilities. The Armstrong orchard, at Queenston, with 1000 St. John and 1,000 Early Crawford peach trees, six years planted, is noted, with a crop of probably 8,000 baskets. This is its first year of bearing. These are certainly two of the finest varieties for our home markets, and in their season we know of no peaches to equal them for any purposes. The Yellow St. John just precedes the Early Crawford, and is over when the latter comes on. The only question in our mind about such large plantations of these excellent varieties is the limitations of our near markets, for when these are filled, some firmer variety, that would carry to some less favored district, is more to be desired. Mr. Armstrong's tomato patch of 10,000 plants is also mentioned, and is reckoned by him to yield 10,000 baskets of fruit this season! rather an enormous yield, which we should judge to be an overestimate. We referred to Mr. Armstrong's success with tomatoes a year ago, and certainly he demonstrates what can be done even with such an every day crop. He makes money out of them by marketing about a third of them in July, much in advance of other growers.

HORSE POWER VS. MAN POWER.

THE contrast between English and Canadian methods of cultivation is very marked. Elsewhere we have described Mr. Cheal's method of cultivating his nursery at Crawley, in the south of England, and how he divides his fifty acres into small garden patches, all worked by hand.

Such a method would be ruinous on a Canadian farm.

The Sun notices Mr. E. Morden's method at Niagara Falls South, by which he avoids hand labor almost entirely. He is a most thorough cultivator, and keeps his whole place under the densest cultvation with the least possible expenditure. To quote from the Sun:

Mr. Morden practices this through system of cultivation, not only in his peach orchard, but in his other plantation as well. In order to facilitate this work, as applied to grape culture, he has adopted a system that I have found applied only on his place. For the support of his grapes, he uses only one wire. This wire is not nailed to the side of the supporting posts, but on top of them. This top nailing adds to the strength of the support and facilitates removal of the wire when necessary. The trunks are kept clear to the height of the wire and the vines are festooned over the wire. They thus, in a measure, become like trees. You can pass under the wires at any point and can work about the trunks as freely as about the trunks of peach trees. With the aid of extension machinery, practically the whole work of cultivation can thus be done by horse power.

"That simple devise," said Mr. Morden, "has reduced the labor of cultivating my vineyard to one-fifth what it was when I had four or five wires."

The same system is applied in his raspberry plantation. Although Mr. Morden grows the varieties of raspberries that propagate by suckers, he does not permit the plants to grow in solid rows. In planting, he sets the plants four feet apart with a space six to eight feet between the rows. Then he cultivotes both ways.

PACKING APPLES.

VAN DYKE, of Grimsby, who purchased an apple orchard just when the original owners had become discouraged waiting returns, has just come in for a full crop of apples, probably 3,000 barrels of Baldwins and Greenings, and with the high prices of apples now prevailing he may nearly clear off the purchase price. Apples are now one of the most satisfactory of orchard fruits. VanDyke has made six sorting tables, on which the fruit is emptied by the pickers, instead of upon the ground, as is usual. These tables are made to fold, and have canvas tops to hold the fruit. They are about twelve feet long, and will hold about two barrels of apples at a time. On these the fruit is emptied by the pickers in the orchard, while the packers sort them, barreling the ordinary stock and sending the extras to the packing house for boxing.

At Maplehurst we use a wooden table, which slopes toward the packer, so that the fruit will roll toward the barrel, while the extra grade is taken out for boxes. We are doing the whole of our packing in the orchard this year as fast as the apples are picked.

WEEKLY EXPORT SHIPMENT OF BARTLETT PEARS.

WE have been shipping a car a week of Bartlett pears in cold storage to Glasgow, and find the orchard packing the only place for quick handling. We did not wrap them, but packed in half cases 5 x 12 x 18, with layers of excelsior. The pickers emptied their baskets in the packing table, and the packer, with one assistant, put up about two hundred cases a day. Every night these were sent to the refrigerator car, which at the end of each week was re-iced and forwarded to the ocean steamship for Glasgow, Scotland. In the car the temperature would average about 45 degrees, but in the ocean storage about 35. In our judgment this is too high for the best results, and 33 degrees would be much to be preferred.

We give this much detail of our private business because all gruit growers have a common interest in the results of these shipments, which will in time be made public.

APPLE PACKING.

THIS work also we are doing in the orchard this season, for the labor of drawing the fruit to the packing house, which we have been following other years, is an item worth saving. We take our packing table into the orchard and move the outfit from place to place upon a light

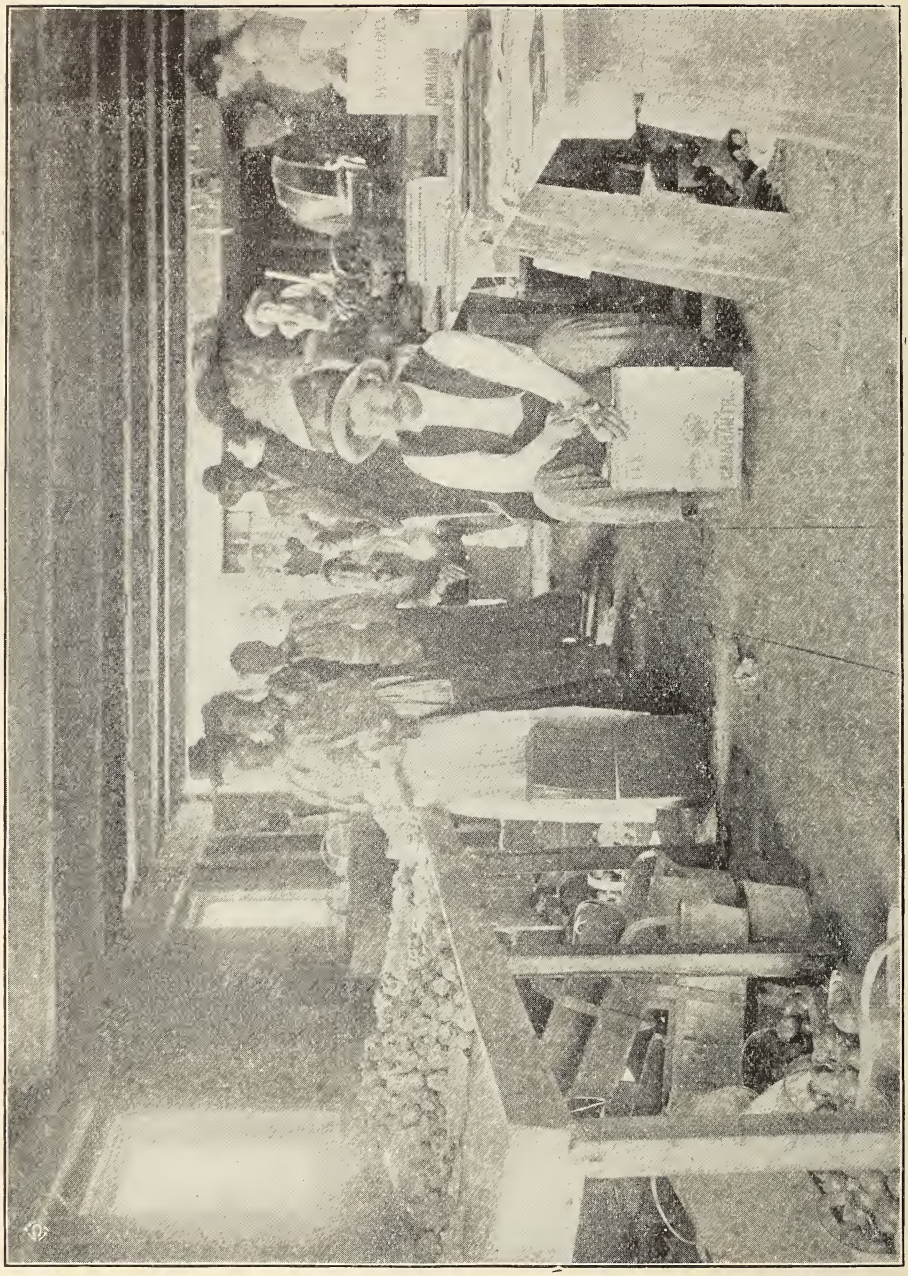

FIG. 2658. PACKING FRUIT FOR EXPORT.

drag. The pickers empty upon the packing table, and one packer with one or two assistants can pack as fast as six men can pick. The fancy fruit is all packed in the box suggested for trial by the committee of our association at Walkerton last December, viz., 9 x 12 x 18; the rest goes into barrels, and is graded No. 1 and No. 2. These barrels and boxes are at once nailed up and marked, and, as soon as the car is ready are at once packed on board. This plan reduces the handling to a minimum, and is almost the only way to handle a large orchard in seasons like the present, when labor is so expensive and difficult to get at any price.

GROWERS SHOULD SHIP IN COMPANY.

MR. W. A. McKINNON, chief of the fruit division, Ottawa, at a recent meeting of growers at Grimsby, emphasized the great importance of working up an export trade in tender fruits. When all the Ontario orchards come into bearing the home markets cannot possibly take it at paying prices to the grower, and it is therefore of the utmost importance that we capture the northwest markets for this province.

Ontario growers should unite in small companies at shipping points in the fruit districts and make up car lots so as to secure low rats of transportation. Packing and shipping houses, run on the co-operative plan, would also work well. Indeed, this principle would also help to solve several problems, as, say, the cold storage and the orchard spraying. He instanced, as a case in point, a spraying machine, run by a gasoline engine, at Woodstock, which keeps twenty orchards thoroughly sprayed, covering a district about ten miles in length.

CARS SHOULD BE WELL ICED.

There is doubtless much carelessness in the icing of cars, and shippers should see to it that a sufficient supply is put in the boxes at the starting point. Mr. Scriver, fruit inspector from Montreal, who was present at the same meeting, said that was of the greatest importance, for a poorly iced car was harder on the fruit than no ice at all. He had examined a great many refrigerator cars at Montreal, and in many cases found no ice remaining in the boxes on arrival. He believed that 90 per cent. of the failures in the export of tender fruits was due to the badly iced cars. Mr. Scriver also drew attention to the common fault of over pressing apples in barrels. The fruit thus bruised was sure to rot, and one or two rotten apples in a barrel would make it slack.

THE HERBERT RASPBERRY.

MR. R. B. WHYTE, the originator, says of the Herbert:

"The Herbert is the best of 30 seedling raspberries fruited during the last twelve years, and after careful comparison with all the leading varieties, I can confidently say that it is very much superior to any of them. In hardiness, it easily takes first place, standing a lower temperature than any other kind. The cane is very strong and vigorous, slightly prickly, leaves large and healthy, and has never been affected by anthracnose, or disease of any kind. Fruit bright red, somewhat oblong, the largest of all red raspberries, larger than Cuthbert or London. Flavor, very sweet and juicy, the very best for table use. Enormously productive, will bear twice the crop of either Cuthbert or London. under the same conditions. Season five or six days before Cuthbert. Holds its size well to end of season."

A VISIT TO GREY COUNTY

IT was a long ride from Hamilton via Harrisburg away up to Walkerton, the county town of Grey County, but there was a model fair in that place on the 23rd and 24th of September, and it seemed an opportune time to visit that section and take notes of progress. At Guelph we were joined by Dr. Mills and Prof. Hutt,

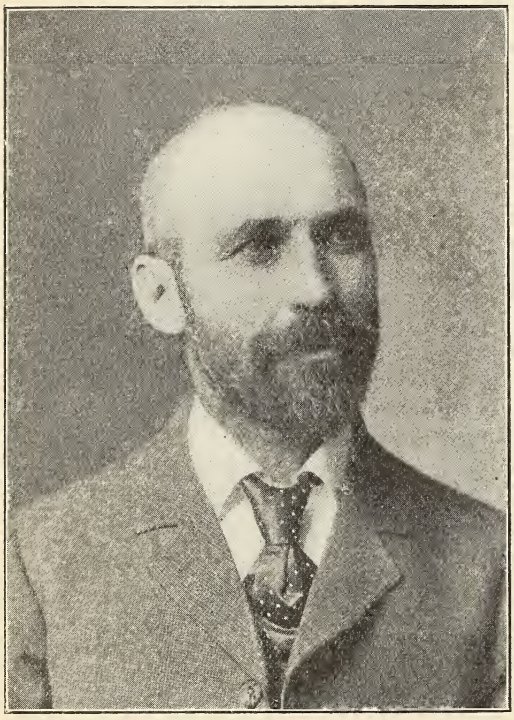

FIG. 2659. MR. A. E. SHERRINGTON.

and although the train was late, and we did not reach Walkerton until after 9 o'clock, and the public meeting in the town hall had already been going an hour, yet all three were called upon for addresses. Following a fine address on "The Home," by Miss Maddock, Dr. Mills gave a most vigorous and rousing address calculated to arouse the young men to prepare themselves to become intelligent, educated and successful farmers.

THE FAIR AT WALKERTON.

The directors and officers were most active in their efforts to make this fair a grand success. The children from all the neighboring schools marched to the grounds to the music of the bands, and in spite of the usual rain accompanying a fair, there was a large attendance of visitors. One great lack at Walkerton, and at nearly every county town, is suitable and attractive fair buildings and their surroundings. The grounds are barren and uninviting, and the buildings most cheerless and often too large. No paint is ever put on them, inside or outside, and so ugly are they that no fair manager, backed up by however active and industrious a directorate, and however much aided by a patronising government, can ever work out a model fair to his own satisfaction or to that of the public. The buildings should be painted inside and out to begin with, and then the grounds about them should be planted with groups of shade trees and shrubbery as to be inviting as a park. Such a place would invite both people and exhibits and make the work of the officers much more easy because of the greater public enthusiasm.

THE FRUIT EXHIBIT.

The prize list for fruit was a limited one, including only about a dozen and a half varieties of apples, five varieties of plums, one of grapes, and no named varieties of pears, peaches or quinces. Perhaps the number of varieties of apples was large enough if it really included the most delicate ones for the district. They were Spy, Baldwin, King, Golden Russet, Greening, Alexander,

Twenty Ounce Pippin, Mann, Canada Red, Colvert, Rox. Russet, Snow, Maiden's Blush, St. Lawrence, Ontario, Swazie, Ribston and Tallman.

APPLES TO PLANT IN GREY COUNTY.

Now, in planting apples in Simcoe, Huron, Grey or Bruce, we would be inclined to omit several of these, as for example the Golden Russet, because not sufficiently productive. At our Huron station this apple has proved regularly unproductive, even in alternate years. This year only one side of the trees, and in some cases only certain limbs are fruiting; besides, the small size of the fruit counts against it for a first-class export apple. Then the Twenty-Ounce Pippin, or Cabashea, is most unproductive everywhere. It is a good seller, but it is too poor in quality for home use, and yields too little fruit to make it profitable for market. Snow, too, is unprofitable in the county of Grey, because of the scab; while the Maiden's Blush is only worth growing for ornament. In place of these we would suggest Gravenstein, Wealthy, Blenheim and Crimson Pippin.

THE BLENHEIM ORANGE.

"I think," said Mr. Whitehead, "that the Blenheim is one of my most profitable varieties. I have three trees in my orchard twelve years planted, and this year I estimate the crop as at least twenty barrels."

"I have a different story to tell," said Mr. Elford, of Huron County. "I have five or six trees twenty years planted, and I have never yet had two barrels off a tree in any one season."

"Well," said the writer, "I have great faith in the Blenheim; it is one of the best export apples and much wanted in Great Britain; has a good reputation, which is worth considerable even to an apple. It is

FIG. 2660. MEETING OF FARMERS AND FRUIT GROWERS AT SHERRINGTON'S.

clean from blemishes, so that every apple on a tree goes into the barrel. I intend top-grafting a number of trees in my orchard to the Blenheim."

APPLES ABOUT WALKERTON.

The general report was that a fair quantity of apples would be harvested, but that the quality was below the average. The Greenings were much spotted, and indeed most varieties would cull out badly. Buyers were offering $1.00 a barrel for the apples picked ready for packing.

There are not many large apple orchards in the vicinity, most of the apples being grown by farmers in small orchard plots. Perhaps the largest was that of Mr. Shaw, of seventeen acres. "I have," said Mr. Sherrington, "been buying apples hereabout for nine years past and know the orchards well. One year I paid out $44,000 for 22,000 barrels, which gives you a fair idea of our apple crop in this section."

CO-OPERATIVE ORCHARDING.

"We have formed at Walkerton what we call the Lake Huron Fruit Growers' Association," said Mr. Sherrington, "and I have great confidence in its success. We meet monthly for the discussion of methods, and for business plans. In a business way our scheme is to work together in buying packages and in shipping, leaving the details to a manager, to sell at the shipping point at a definite price f. o. b. Last year we put up 1,000 boxes of Duchess apples for export. Now we are receiving orders from the Northwest, and no doubt that will be our best market." Here Mr. Sherrington pulled from his pocket some letters, in which he showed orders from Portage la Prairie and other points for three carloads of the Lake Huron brand of winter apples.

"We have," continued he, "about forty members of our association, and are having applications for membership every day. Each member packs his own apples according to the standard of the association; his own name goes on the packages; and, if they stand inspection they are shipped out under the association brand, otherwise they are rejected entirely."

OUR FRUIT EXPERIMENTER AT WALKERTON.

In Mr. A. E. Sherrington we have secured a painstaking careful experimenter, whose work is much appreciated in the Lake Huron district. This man has had a singular history, and his indomitable energy and wonderful perseverance have combined to enable him to overcome tremendous difficulties and attain success in his vocation. Born in a log house in Peel township in the County of Wellington, of the second white family that settled in that part, he says that in his early years he often saw no white face for six months at a time. It was a life of toil, with little opportunity for school; just a little in the winter months and then at work as soon as the snow went off. At the age of fourteen his father's death left the boy in full charge of the farm, and he did not shirk his duty or his responsibility, but himself did all the work and shouldered the whole management until he was twenty-six, when he left home and struck out for himself. First he hired with a good farmer near Berlin, then with another near Woodstock, when he rented a farm for himself near the latter place and remained on it three years. In 1883 he bought one hundred acres near Walkerton, but having an ambition for fruit farming he disposed of the farm, and about twelve years ago he bought seven acres near the town of Walkerton, on which he now resides. Recently, since he has taken up our experimental work he has added three acres to his plot, making about ten acres in all, which he keeps under excellent cultivation. His apple orchard is well pruned, cultivated, and thoroughly sprayed, and his experimental plots of rasp-

berries and commercial plums is full of interest to visiting fruit growers. As side industries Mr. Sherrington has a apiary of about fifty hives, and a poultry yard with about 100 thoroughbred Plymouth Rock hens, of which all the eggs are sold for setting. With such care and such industry, ten acres is enough to yield a good income, better than many men take from ten times that acreage.

Such men are valuable in every community. They have gained in life's school an education that cannot be got from books, and their fellow men, seeing how they manage their own affairs, have confidence in them with regard to public matters. So in the case of Mr. Sherrington, his fellows have elected him to their township council, made him superintendent of the fair, organizer of farmers' institutes and fruit growers' associations, judge at fairs, and many other positions of usefulness. We count ourselves fortunate in securing his services in testing fruits for the general good.

THE KING APPLE.

THE King is one of the favorite varieties of apples in the market, but unfortunately is so shy a bearer in its own roots, that is is not at all profitable. It has, however, frequently been noted that by topgrafting it on any vigorous stock it becomes much more prolific.

The Fruit Division, Ottawa, invited correspondence upon this subject, and has received some valuable information. Mr. C. L. Stephens, or Orillia, has the "King" topgrafted on "Duchess," and finds that its bearing qualities are quite satisfactory. Mr. Wm. Read, of Jarrat's Corners, has twelve King trees grafted on Duchess, and reports equally good results. Mr. Judson Harris, of Ingersoll, has an orchard of two and one half acres, the crop from which for the past eight years has never brought him less than $500. Many of these trees are Kings grafted on Russets. Mr. Robert Murray, of Avening, has a number of King trees on their own roots and others grafted on Tolman Sweets, and notes that the top grafted trees are the only ones that give him paying crops.

The experience of these growers and many others goes to show that it would be a very profitable piece of business to topgraft at least some of the early apples to be found all over Ontario with Kings. It is an apple that exactly fills the bill as a fancy market variety, as it is of excellent quality, color and size, and well known in the English market. If its only defect, want of productiveness, can be cured by the simple method of topgrafting, it should prove a boon to many people who have vigorous trees of undesirable varieties.—*Kincardine Reporter.*

ENGLISH HORTICULTURAL NOTES

BY THE EDITOR.

IT was no small privilege to visit Hampton Court and see that immense Black Hamburg grape vine which is famous the world over, and to have the old gardener, Mr. Jack, point out its characteristics. The old man has been nineteen years in the service, and now is pensioned, with the vine as his special care.

"How large is the vine in circumference?" we enquired. "At one foot from the ground it measures four feet."

"I have heard that you sometimes take one ton of grapes from it in a single season. Is that true?" "Possibly it has yielded that much in a single season, but I do not permit it as a rule. It often sets about 3,000 bunches, but I remove about half of them to economise the vigor of the vine."

The great Wisteria at Hampton Court was quite as remarkable as the grape vine. It was brought from China about 1818, so that it is now over 80 years old, and probably the first one ever introduced into England. It now covers a wall thirty feet long and at least twelve feet high, and measures six feet in circumference around the base. It was in full bloom when we saw it, and made a magnificent display.

The avenue of Wych elms, probably planted by Cardinal Wolseley, who built Hampton Court in 1568, is another horticultural curiosity. These trees are annually pruned in such a way that they never increase in height, having once arched the pathway.

It is not quite clear, says the Gardening World, why the avenue of wych elms, with their interlacing branches, should have become known as Queen Mary's Bower. That it was formed prior to the building of the new state rooms there can be no doubt, for Evelyn, in an entry dated June 9, 1662, says: "The cradel wolk of hornbeame in the garden is, for the perplexed twining of the trees, very observable." Evelyn was mistaken as to the kind of tree with which the avenue or bower was formed. The branches are no longer allowed to interlace, but are annually pruned in the manner shown in the accompanying illustration. The growths, however, meet during the summer, and form a delightfully cool retreat. The walk is one hundred yards long and twelve feet wide, and the trees are twenty feet high.

FIG. 2661. AVENUE OF WYCH ELMS AT HAMPTON COURT.

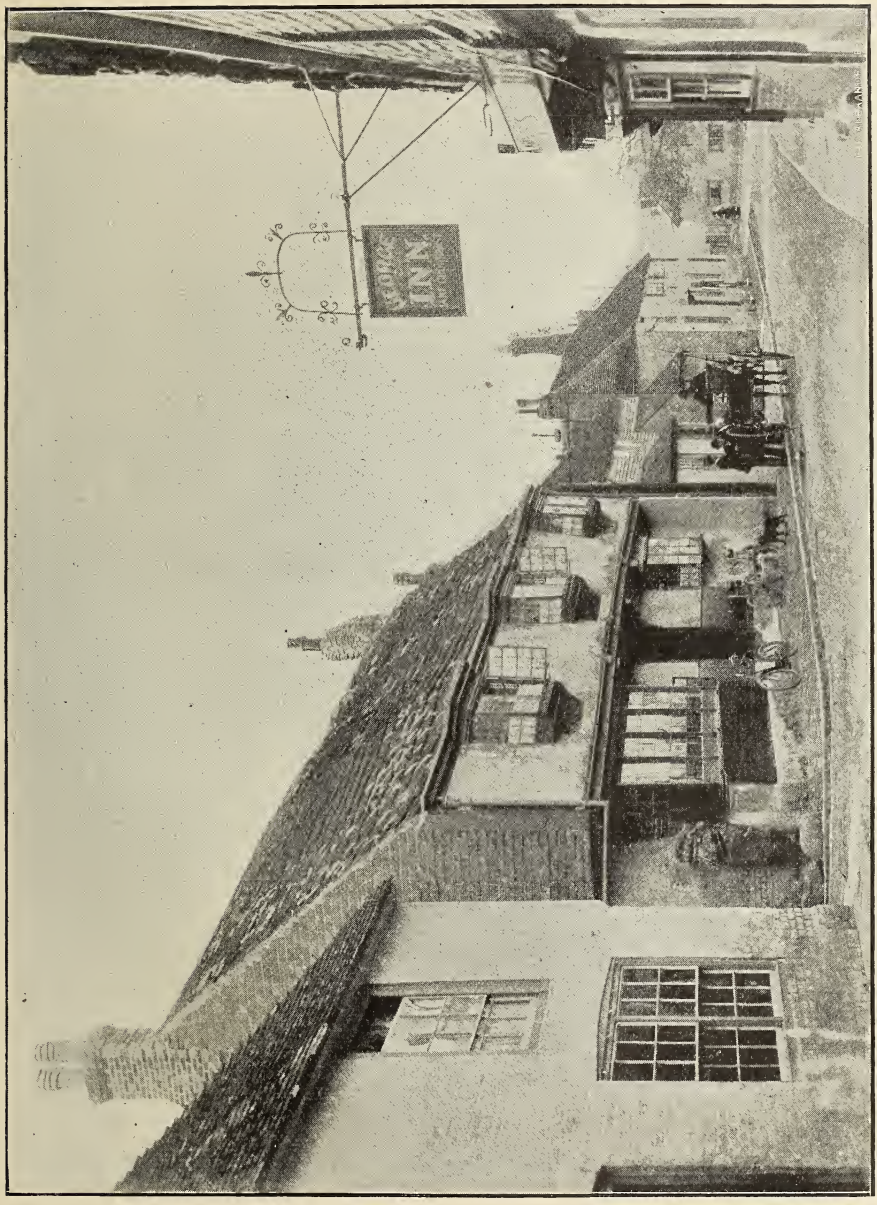

FIG. 2662. IN RURAL ENGLAND: THE VILLAGE INNS.
A view in the Village of Alfriston, showing at the right the "George Inn" and opposite the "Old Star Inn," a hostelry of local repute.

The great flower show of the Royal Horticultural Society in the Temple Gardens was visited by us on the 25th of May, and truly the display of roses, azaleas, rhodendrones, orchids, gloxinias, tuberous begonias, caladiums, cannas, sarracenias, etc., excelled anything we had ever before seen.

We took notes of a great many wonderful collections, but it would be unfair to mention them here without giving a complete list, and that belongs rather to a florist's trade journal than to our pages. Some idea of the comprehensive nature of the exhibits may however be imagined when we note that John Waterer alone showed 42 varieties of rhodendrons, a display that can be better imagined than described. He pointed out to us one which he esteemed his finest, namely, the Pink Pearl, which was truly superb.

An interesting display of potted fruit trees in bearing was made by those celebrated horticulturists, Thos. Rivers & Sons, of Sawbridgeworth, Herts. Mr. Camp, who was in charge, said the firm had now four hundred acres in fruit and fruit trees. We noticed among his novelties shown, the Peregrine peach, similar in appearance to the Alexander, but a free stone; the Early Rivers cherry, a sweet black variety of about the season of Tartarian, but a surer cropper and larger; the Frogmore, a Bigarreau, earlier than Napoleon, better in flavor, and more tender, counted his best white; and two special varieties of plums, the Early Rivers, his earliest, and the Monarch, his latest, and these he counted the most profitable for the orchard.

The following note on the show, from the Gardeners' Chronicle, will appropriately close this hasty sketch of what is known in London as the Temple Flower Show:

Delightful weather, a magnificent display of flowers, and a very large attendance of visitors, marked the first day of the sixteenth annual show of the Horticultural Society opened yesterday in the Temple Gardens. While, on the one hand, the Benchers had liberally given up the whole of their historic lawns for the occasion, the society, on the other, had rearranged their tents, and economised space in other ways, with the result that, though the gardens were thronged from morning to evening, the crush experienced in previous years was distinctly lessened, if not altogether done away with. Tents 1, 2 and 3, for instance, instead of existing separately, had been made into one arcade, with an obvious economy of room and improvement in ventilation, though the alteration, not being accompanied by a like rearrangement of numbers, was somewhat of a snare to those who did not use their catalogne with close attention.

Entering the first canvas hall from the embankment, the visitor came upon a gorgeous bank of tulips, tropical in their splendor, and making the early English roses on the left of the way look pallid by comparison. After the tulips were marshalled Cape primroses, a comparatively new flower, which growers hope may presently take its place as a summer bedding plant, and following these again Scotch pansies, and begonias in fervid scarlets and yellows, outshining everything in their neighborhood. On the other side of the tent the earliest arrivals, who alone enjoyed much liberty of movement, found some relief from all this floral brilliancy in practical, if unexpected displays of such useful things as peas and carrots, melons and cucumbers, all of which, for some reason, were in show between Messrs. Cannell's flaming cannas, cacti flowering as grandly as though they were in their native Mexican forests, and a hundred other beautiful things from the rich stores of the modern horticulturist. A noticeable exhibit in tent 4 was that of the heaths shown by Messrs. Balchin, of Hastings, an unassuming stall, but commanding its group of admirers all day. At one end

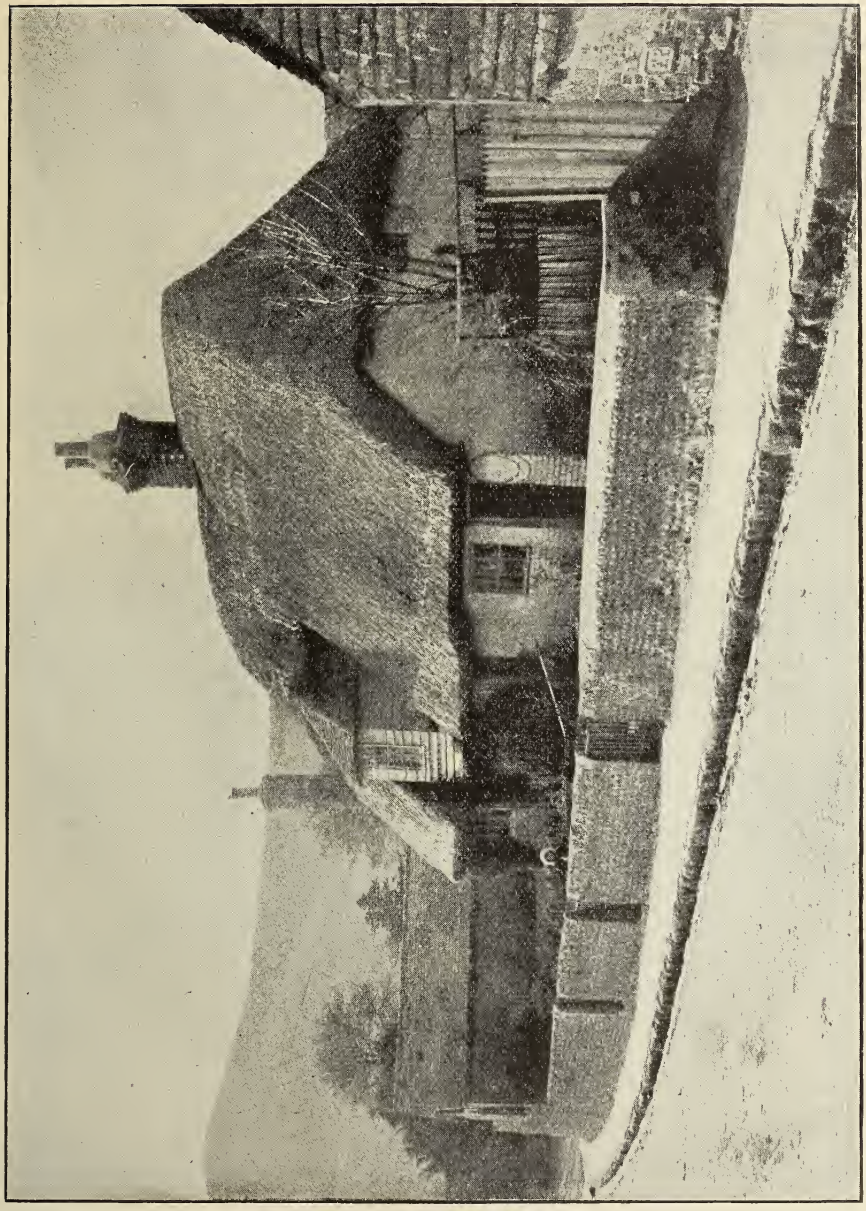

FIG. 2663. AN ENGLISH COTTAGE.

of tent 5 Mr. C. Turner had an immense assortment of growing roses, fragrant and delightful, if the individual blooms were not quite what will be looked for a little later in the season. The other extremity of the enclosure was occupied by an equally impressive display from Messrs. Paul's nurseries, before which an almost impassable throng of admirers of the queen of flowers paid homage until the exhibition closed for the day. All the central stalls here occupied by orchids, while flanking them were azaleas in a hundred delicate shades between coral-red and primrose, fine foliage plants, and banks of clematis, a flower which, either as a creeper or bedding subject, appears to improve every season.

Outside, under the plane trees, Messrs. Sutton possessed a pavilion all to themselves, the things shown, especially calceolarias and gloxinias, being very fine, in spite of a trying season and absence of sunshine. On their vegetable benches Messrs. Sutton had several plants of each kind in actual growth, the tomatoes and cucumbers being trained in an original manner along the ceiling of the pavilion, while the fruit hung down and gave a most natural touch to the exhibit. Potatoes were shown in ornamental boxes, one side of which had been removed and glass substituted, thus enabling the tubers to be seen growing in the earth at the root of the plant. Messrs. Barr's pigmy trees in pots, from ten to a hundred and fifty years old, were very wonderful, and apparently very healthy; while several miniature representations of the popular rock-garden, with its special plants, claimed much interested attention. The show remains open until to-morrow evening, and is undoubtedly one of the best the society has held in the Temple.

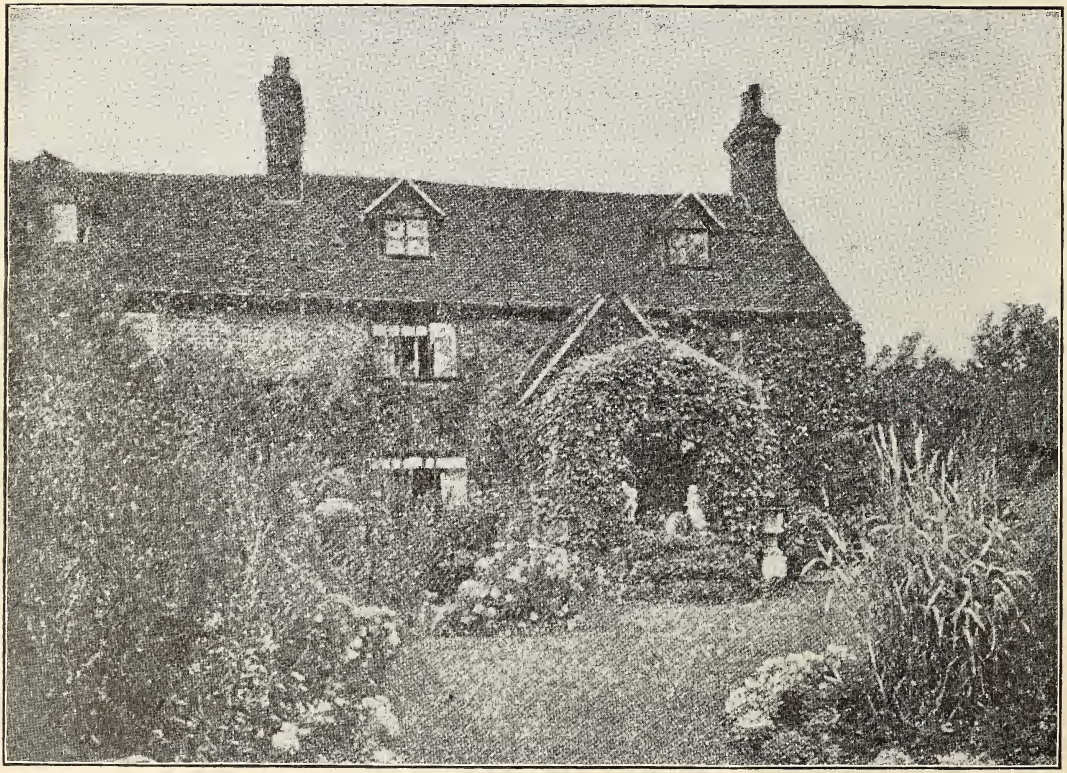

Fig 2664. An English Home.

THE MANITOBA FRUIT MARKET.

ON Saturday evening, August 29th, a fruit growers' meeting was called at Grimsby to meet Mr. Philp, fruit inspector at Winnipeg. A letter was read by Mr. W. A. McKinnon, addressed to the Dominion Minister of Agriculture by the Winnipeg Fruit Exchange, in which the fruit dealers denied the accusation that any preference was given to California shipments, and asked that Mr. Philp be sent to Ontario to explain to the packers just what they needed in order to make the trade a success.

METHODS OF PACKING.

Mr. Philp gave a very interesting and instructive talk, and to begin with, compared California and Ontario methods as to packing a car. No baskets are used for these distant shipments in California but all fruit is put in boxes and held firmly in place by strips. The fruit thus put up and packed arrived in Winnipeg in perfect condition, and naturally brought higher prices than Ontario fruit in baskets. These latter are, in Mr. Philp's opinion, entirely unsuited to use for long shipments, because so frail. Sometimes a refrigerator car comes to Winnipeg from Ontario with fruit fourteen tiers high, altogether too great a weight for the bottom baskets, which often give way, and the fruit is, of course, ruined. Is it any wonder that Winnipeg fruit merchants prefer California or British Columbia fruit, when it arrives in so much better condition?

Then, too, all California fruit comes wrapped with paper. "I never saw," said Mr. Philp, "a box of pears or peaches from California without the fruit being wrapped in paper. This prevents skin blemishes from chafing, and seems to help the appearance."

EARLY APPLES.

Early apples, too, would do well in the west in Mr. Philp's opinion. He quite approved of the writer's plan of packing in the orchard as fast as gathered, so that the fruit could go direct from the tree to storage. The common practice in Ontario of leaving apples in heaps in the orchard for days, and perhaps weeks, is a great mistake and should be avoided. If boxes are used it might be well to adopt the British Columbia size, which is 10 x 11 x 20 inches, a little larger than the box in use this year in Ontario.

ONTARIO SHOULD COMPETE.

Winnipeg fruit dealers, said Mr. Philp, are anxious for Ontario fruit. They have no preference for California fruit except because of the better condition in which it arrives. You fruit growers in Ontario must take a little more trouble with your packing. Wrap your pears in paper, put them in boxes, and then pack your car in such a way that there will be no moving of the boxes when the car is shunted. The order price for good pears in the Northwest is about $1.00 a box, and for pears it averages about the same. These latter come in from California in square crates, containing four square baskets, holding about five pounds of plums or grapes each, or about 20 lbs. to the crate. A square of paper is laid between each layer of plums, and in this way the fruit reaches Winnipeg in good order and brings about $1 a crate.

Two years ago, said Mr. Philp, I was in Edmonton, a city of the Northwest, second only to Winnipeg in importance. I was surprised to find that there were no Ontario apples offered for sale—not a barrel could be traced to this province during the whole season of 1901; all the apples on sale in Edmonton were in boxes from British Columbia.

AMERICAN POMOLOGISTS

THE Boston meeting of the American Pomological Society, held September 10-12, was a success in every way except that of attendance. The excellent program of this ancient, honorable and eminently progressive association deserved larger audiences, had there been only the city of Boston to draw from. As it was, many States and Provinces were represented. Among the Canadians were C. R. H. and Arthur Starr, and Prof. Sears, of Nova Scotia; Mr. Craig and Mr. Jack, of Quebec.

A most interesting feature was the series of five-minute speeches at the evening meetings, particularly that of Friday, when "Ideals" were discussed. Many speakers took part, and the ideal raspberry was dealt with by Mr. M. A. Macoun, of Ottawa, the dessert apple by Prof. VanDeman; the amateur pomologist by Mr. W. A. Taylor. The ideal fruit growers' home, his children, their education and their environment, were other subjects ably handled by speakers who had given time and thought to their work of "boiling down" ideals.

The four-year-old committee on naming fruits presented a carefully worded report, laying down important principles to govern official nomenclature. Names are to be as brief as possible, possessives are to be discarded, along with such general terms as "pippin," "pearmain" and "rareripe." Rights of originators of new fruits, and of the districts or sections of origin, are to be respected so far as the general interest will admit; but having once formally published the name of a variety, its originator has no further authority over it, and no more right to change the name than any other person. A variety should not be named while it is still in the experimental stage, but only after it has been successfully propagated.

Numbers should be used only during the preliminary or test stage, to be exchanged for a distinctive name when the variety is established on the market.

Some discussion arose over the question whether an owner should have the absolute right to give a new variety its name, or whether, if quite unsuitable, such name should be refused recognition.

At Professor Waugh's suggestion the committee was continued and empowered to make minor changes in its report as presented.

The report of the "ad interim" committee on the Wilder awards was equally interesting, and affirmed the principle that no award should be given to a new fruit, no matter how excellent, which had not been propagated and successfully grown elsewhere than in its native place. In this connection it may be mentioned that a medal was awarded an exhibit of apples brought by Prof. Craig's brother from the homestead at Abbotsford.

Prof. Bailey, of Cornell, delivered a stirring address on the importance of the common school, on which, he said, the future of the country is based, and on the broadening, elevating influence of "mature studies" on the mind and life of the child.

Prof. Powell spoke on the relation of refrigeration to the fruit industry in securing an even and widespread distribution and avoiding the extremes of over-supply and scarcity.

Prof. Waugh dealt with the judging f fruits by scales of points, and Mr. W. F. Taylor claimed the support of all delegates in securing the best display of fruit ever

collected for the St. Louis exposition next year.

"Fruit Inspection and the Export Trade," was the subject of a paper read by W. A. MacKinnon, chief of the Fruit Division, Ottawa. This led to considerable discussion, to the appointment of a committee, and finally to a resolution recommending that the federal government be asked to pass legislation similar to the Canadian Fruit Marks Act. This is a high, but well-deserved tribute to the success of the measure as operated by our Department of Agriculture.

Election of officers: President, J. H. Hale, So. Glastonbury, Mass.; Secretary, Prof. Craig, Cornell.

A HOPEFUL OUTLOOK FOR THE APPLE MARKET.

CANADA has unquestionably a large crop of apples, notwithstanding the fact that in some sections there is a falling off in the supply ac compared with that of last year. For instance, in the St. Hilaire district it is estimated that the yield is not over 15,000 barrels, against 40,000 barrels last year. On the Island of Montreal, however, the crop of Fameuse is very large, and remarkably fine in quality, finer, in fact, than for the past ten years. In Ontario there is a big crop of winter fruit; but west of Toronto there will be quite a lot of seconds. East of Toronto the quality is generally fine, and the yield good. Not only have English buyers been surveying the situation, but French buyers are also here, for their share of the crop; so that the prospects at present are that Canadian apples will not go begging a market this year, providing, of course, that too high prices are not demanded by growers. A considerable portion of the fruit has been contracted in the west at $1.00 to $1.25 on the tree, and in some instances $1.50 has been paid for fancy red fruit. Receipts are light, except for those local grown, which are plentiful. Owing to the glowing reports recently received from British markets there are strong inducements for shippers to push forward their fall goods, the early shipments having netted them from $1.50 to $3.00 per barrel as to quality, according to the statement of the principal of a well known English house. In this market choice St. Lawrence, Alexander, and fancy red fruit has sold at $2.25 to $2.50 per barrel, and ordinary fruit, such as Duchess, and green summer varieties, $1.50 to $2.00, and culled stock $1.00 to $1.25. Winter apples are going forward pretty freely from New York State, especially from the Hudson River districts, consisting of Greenings, Baldwins, Kings, and other winter varieties, which is considered pretty early, and before the fruit has fully matured. Remembering the disastrous results of former seasons through exporters paying high prices, on the strength of a short crop in Europe, these operators re exercising a good deal of caution in their forward purchases of winter fruit, and several of our largest buyers are refusing to pay over $1.25 for the fruit. Barrels are scarce this year owing to the big demand, and prices have advanced to 35 cents, and as high as 38 cents has been paid in some instances. For week ending August 29, the shipments of apples from Atlantic ports were 29,907 barrels, against 20,686 barrels for the same week last year. The total shipments for the season to the above date were 57,389 barrels, as compared with 36,952 barrels for the same period last year. —*Montreal Trade Bulletin.*

HANDLING THE APPLE CROP

SOME timely and valuable advice on the selling, picking and grading of apples is given by Mr. W. A. MacKinnon, chief of the Fruit Division, Ottawa. Every one interested in the growing and marketing of apples should write for a copy of Mr. MacKinnon's bulletin on the "Export Apple Trade."

SELLING THE CROP.—When the grower is not also an exporter he may sell the apples in one of two ways, either at so much per barrel or at a lump sum for the entire orchard. As buyers often make their contracts long before picking time, either method involves consideration of the probable market price during fall and winter, which will be regulated by the total supply and demand, influenced too by changes in the quality of the crop. When to this uncertainty we add the difficulty of estimating months in advance the total yield of an orchard, subject to all changes of weather, to drought, hail and wind storms, the unbusiness-like character of bargaining "by the lump" is apparent. Whichever party gains an undue advantage, the trade suffers from this as from any other kind of gambling. The system was strongly condemned by the National Apple Shippers' Association, and our Canadian buyers describe it as an unmixed evil. Surely no more need be said to induce both buyers and sellers to abandon such guesswork, and to buy and sell by fixed standards of measure.

PICKING.—All apples should be carefully picked by hand, with the stems on, and without breaking the skin or bruising the fruit in any way.

As a general rule it is advisable for growers to harvest and pack their own fruit, whether they eventually sell it on the premises or ship to foreign markets. In either case it is a great advantage to the seller to know exactly the quality and variety of the fruit in every package. It is a still greater advantage to have each variety picked at just the proper time. No wholesale buyer is able to have his men arrive at each orchard just when the apples in it are ready. The result is that every season a great many orchards throughout Canada are picked either too late or too early. Fruit picked too early may keep, but is apt to become tough and tasteless; if picked too late it will not keep, as the process of decay has already begun.

TIME TO PICK.—Tender varieties should not be allowed to ripen on the trees, or they will not carry well. Certain others, sometimes styled "winter varieties," such as the Baldwin and Spy, will gain in color and flavor if left on the trees as long as the frost will allow, besides being less liable to spot and mould during storage. It will pay the farmer well to pick his own fruit and see that this first step in marketing entails no needless waste.

Moreover, all varieties of apples are not ready for picking at hte same time, even if destined for the same market; and some early varieties should have more than one picking to get all the fruit at the proper stage of maturity. Only the grower is in a position to watch his orchard and harvest the crop to the best advantage, and it is the grower who loses when he entrusts this task to another, for buyers are certain to allow for shrinkage from this cause. Another loss to the grower arises from carelessness of hired help, who often injure trees by breaking limbs and fruit spurs.

REMOVAL OF "DROPS."—Before any fruit is taken from the trees, every apple, good, bad, or indifferent, should be cleared off the

ground and carried away, to be used for feeding stock, or for any other purpose for which they may be fit, but not for export. Similarly, apples which drop during the picking process should be kept by themselves. We must give the fruit a fair chance from the start; wormy, rotten or otherwise diseased apples spread contagion, and bruised or defective fruit will not pay for labor, heavy freight charges and commission.

Ladders and Baskets.—Step-ladders may be used for getting at the lower limbs, and long point-top ladders for the upper branches; the baskets should be small enough to turn easily inside a barrel, and so shaped as to allow the apples to be turned out with a gentle, sliding motion. In picking, care should be taken to avoid breaking off the fruit spurs, which the promise of next year's crop.

Grading.—Grading always pays, whether the crop be light or heavy. When the wormy, bruised, mis-shapen and spotted apples have been removed, the following qualities should be apparent in the higher grades. (1) Uniformity in size. (2) Uniformity in color. (3) Freedom from defects.

Two grades will usually be found sufficient for export, and both of these should be perfectly free from insect or other injuries, the second being inferior to the first only in point of size and color. All the apples in one grade cannot be uniform in size, but the apples in a single package should be so, for the fruit will be viewed and sold by the package.

It may well happen that a third grade, exclusive of culls, will be found to consist of fair marketable fruit, which the grower feels disposed to export; but this grade, lacking any special features of excellence and showing a greater percentage of waste, often eats into the profit earned by the finer fruit, besides reducing the general reputation of the shipper's brand. Much better average results are likely to be obtained in local markets or from evaporators.

The merits of mechanical graders on the market from time to time should be carefully investigated by all whose shipments are large. A really good and rapid grader will effect a great saving in time and money, and produce a wonderful difference in the appearance of the fruit when each size is placed in packages by itself.

The expert women who grade French fruit for market perform the operation without mechanical aid. A few days' practice with measuring rings is sufficient to train the eye so that the fruit is accurately graded within a quarter of an inch. Many who are attempting to grade by hand will find that the use of a piece of shingle or other light wood, in which holes are cut measuring two and a quarter, two and three-quarters, three and three and a half inches respectively, will be of great assistance in this work. By testing an apple now and again the packer will soon become expert in determining the size without the use of the testing board.—*Department of Agriculture, Ottawa.*

THE FAILURE OF THE FRUIT CROP IN ENGLAND.

THE Gardening World publishes following report of the English fruit crop, which is of especial interest to us in consideration of the abundant crops in Ontario:

Whatever room for uncertainty there may be in the case of field crops generally, there is no doubt now as to the fate of the fruit harvest. To take one or two Midland reports, market gardeners in the Cookhill

district—a centre which supplies a large portion of Redditch and district with garden produce—have a very poor outlook for the approaching autumn and winter. Pears and plums cannot be obtained at any price, and only in a very few instances, where the fruit gardens and orchards happen to be sheltered, is there anything like a medium crop of apples. Soft and stone fruit round about Evesham have turned out failures; so have apples. In the Kineton district fruit "is a general failure." In the Cotswold country the prices asked for all kinds of garden fruit are proof of the scarcity. A placard up in one Cotswold town offered 4¼d. per lb. wholesale for black currants, and in another place 9½d. retail was asked for plums, as attested by the Midland Counties Herald. Apples and pears suffered badly through the frosts of May.

In Worcestershire farmers are concerned in the failure of the apple crop, for there are good apple orchards on most farms. Apples are a very poor crop indeed, and there will be a shortage of cider fruit for a second year in succession. Even in famous cider districts now it is hard to obtain a good cup of cider, and the make this season must of necessity be limited. As many farmers in the Vale of Evesham say that they cannot get laborers to work for them in the hayfields without a very liberal allowance of cider, the short supply is a matter of some importance.

The general scarcity of home-grown fruit amounts, it is said, almost to a famine in the Greengage and plum-growing districts of Southwest Cambridgeshire. So complete was the destruction of the crops by the spring frosts that in some orchards there is absolutely no fruit, while in others two or three on a tree is all that can be seen.

Only two years ago, of Greengages alone the consignments from the villages of Meldreth and Melbourn amounted on two days to 30 tons each, and one week's return was 140 tons of Gages. For the occupiers of small homesteads, with orchards attached, of whom there are a number in the villages, it is a serious loss. In a fruitful year an orchard will pay nearly the whole year's rent of a homestead. But this year it will mean £100 rental for a house worth in itself £20, and no produce from the orchard. As a rule, orchard land which is fairly planted will make about £10 an acre rent, which is a very good thing for the landlords, and also for the tenant in a good or even average year.

In the circumstances it is more than likely that the year will see a more than usual quantity of blackberries marketed. Unlike the cultivated fruit, these wild berries promise very well. There is a growing demand for them even in ordinary years, and as it is they must inevitably be called upon to supplement the poor garden and orchard crops. The bushes bear profusely for two months. This ensures successional supplies for marketing, and gives the blackberry an advantage over the strawberry and currant, whose fruit comes on with a rush and exhausts itself in the course of a few days. Large, evenly graded berries, put up in punnets for sale, can be disposed of by the ton at values ranging from 4s. to 6s. a dozen pounds wholesale. It has been prophesied that they will be retailed this season at 9d. and a shilling a punnet, and even then they will not be unduly dear at the price.

THE HAIRY VETCH.

AFTER seeing the hairy vetch grown in a small way for two or three years, I have concluded that it is bound to become one of the most important of our leguminous crops. In this latitude it may be sown in September or October, and cut for hay in May, thus giving ample time to follow it with a corn crop. I cannot say how much hay it will yield per acre, as practically all with which I have dealt has been saved for seed; but I do know that it woll grow four to five feet high on good land, and this means that it will yield enough to merit attention.

Analyses of the plant show that it is very rich in protein, and anything that will help to balance the usual excess of the corbonaceous elements in our rations is undoubtedly needed by most farmers. For hay, it should be cut when in full bloom. If sown alone it will be hard to handle, but when sown with equal parts of wheat or oats, it is readily managed.

As a cover crop it is especially valuable, furnishing pasture in both fall and spring, and adding large quantities of nitrogen to the soil. Some soils, it is said, must be inoculated with the bacteria which produce the nodules on its roots before the vetch will grow well; but in my experience this has never been necessary. It grows well on a variety of soils and under widely different conditions. It seems to be far less particular in this respect than crimson clover. Where a few seeds were dropped in a pasture, they came up and grew readily; and the Arkansas Experiment Station recommends it for sowing on Bermuda sods, the two furnishing pasture nearly all the year.

Owing to the high price of the seed at present, most farmers will probably find it unprofitable except for seed. We sow it at the rate of one-half to one bushel per acre. It is cut when the bulk of the seed seems ripe, and threshed in an ordinary grain thresher. It will yield from 6 to 10 bushels per acre; and the latter figure may be exceeded on good lands. If the seed is wanted pure, it must be sown alone; but this means some extra labor in handling. It will reseed itself when allowed to ripen, one piece of land which was sown only once having produced two crops of vetch and one of corn, and having a good stand of vetch growing on it at present.

In all the southern half of the country, winter cover crops are a necessity if the land is to be improved, and for this purpose I know of nothing better than hairy vetch. This, together with its value for hay and pasture, is my reason for the opinion with which I began this paper.—*Country Gentleman.*

HOW TO HANG A HAMMOCK.

THE ideal way to hang a hammock is to place it six and a quarter feet from the ground at the head, and three and three quarters at the foot. The rope that secures the head should measure about one foot (it is better to be less), and at the foot about five times that. The object of this is to keep the head comfortable, by being nearly stationary, while the lower part of the hammock will swing freely.

FALL TREATMENT OF VINEYARDS.

DURING the picking season the careful grape grower will make frequent trips over those portions of the vineyard that are supposed to be cleaned up. The dense foliage often hides a few trays of good grapes as the crop is being gathered, which would be spoiled in a few days. All the empty trays or picking boxes left in the field should be kept picked up; the picking standards used to raise the tray from the ground in picking should be promptly repaired and put under shelter for another season's use. By keeping them clean and dry adds years to their usefulness and makes a much more suitable receptacle for the fruit, to say nothing of appearance, a factor not to be treated lightly.

Tillage should be such that leaves the surface slightly higher along the row, and sloping toward the center between the rows. This will have a tendency to run off all surplus water and keep it from settling around the vines during winter. Plowing the vineyard after the crop has been harvested is not to be recommended. The season's growth is finished. No possible good, and only harm, can come from cultivation, which converts the soil into a sponge, thus holding every particle of rainfall, when it does more harm than good. Cultivation should cease by August 10 or thereabouts, alowing the soil and roots to remain undisturbed until next spring.

At the last cultivation it is advisable to sow a cover crop, to hold the soil and keep it from washing and leaching, catch and retain snow, as well as protect the soil and roots from sudden changes of temperature. If weeds are making a rank growth during the fall, cut them before the seeds have developed.

There may be advantages that would overbalance the ill effects of fall plowing, such as covering up the rotted grapes; thereby getting rid of part of the fungous spores contained in them, which would develop more rapidly on the surface and increase the amount of rot another year. During the picking and packing season care should be exercised as to the disposal of the rotten grapes. Destroy every sign of a diseased fruit.

Some vineyardists have a h bit of leaving the vines until spring before trimming. We always prune as soon after the leaves fall as possible. However, it's better to wait until after a few heavy freezes. This will dry up the sap and make it easy to distinguish immature growth. We use mostly the Kniffin system, or what I consider a modification of that method. Whatever system is followed, it's always safe to advise observing the growth of the previous season in order to determine if any change is to be made. After the vines are trimmed see that they are loosened from the wires. The material used in tying may cut into the wood another year if it is left, also damage may be done by heavy snow dragging the canes down over the wires. Pull the surplus wood into the middle between the rows. In doing this, it's best to pull against the posts. If possible, draw out and burn the brush in the fall, saving this time for other spring work.

A pole about two inches in diameter and 12 or 14 feet long is used to draw out the brush. Attach a strong wire, say 5 feet from the large end, letting it extend a little farther than the end, to hitch the horse to. I like to review the experiences of the season after the crop has been harvested, and fix in my mind anything I have learned; or better yet, take notes during the entire year. In this way any change I wish to make, any new plans I may wish to introduce, is not forgotten. Otherwise, it might be thought of only when I see my mistake, and too late to put it into execution.—American Agri*culturist.*

THE DELICIOUS GRAPE

RECIPES FOR MAKING JAMS AND JELLIES.

NO fruit comes at a better season for preserving than the grape. It does not ripen until most of the other summer fruit is gone. To be sure, the unripe grapes must be plucked during the late summer, but these are used for one or two receipts only.

GREEN GRAPE JELLY.—For this delicious sweet the ordinary wild or fox grapes are the best. They will usually be found growing by the roadside. If plucked before they begin to color they will make an exquisite green jelly of quite a different flavor from that which is obtained by using them when partly ripe, in which state they are a light pink and produce a jelly of that color. In either case the process is the same.

Strip the grapes from the stems and place them in a large earthen jar. Stand this in a larger vessel containing water. Place over the fire, and as the grapes begin to soften stir them from time to time with a wooden spoon. Do not hasten this part of the work, but let them stand and steam until thoroughly crushed, a process which often requires several hours. When well broken, place the grapes in a flannel jelly bag and let drip without squeezing until the juice is well extracted. Measure, and for every pint allow one and a half pounds of good granulated sugar. Put the juice in a preserving kettle and put the sugar on platters. Stand the sugar in an oven to heat and place the juice over a fire. Let boil for twenty minutes and skim carefully from time to time. Then turn in the hot sugar and let boil up once. Remove from the fire immediately and turn into jelly glasses while hot. Let stand uncovered until firm, then cover the glasses and store in a clean place.

RIPE GRAPE JELLY.—For this purpose wild grapes are, perhaps, the best of all, but the Catawbas yield a jelly of particularly beautiful color and delicious flavor, and any good sort can be used. Proceed exactly as directed for wild grape jelly, using one pound of sugar to one pint of juice in place of 1½ pounds.

GRAPE MARMALADE.—Choose ripe grapes of any familiar kind, and place them in the preserving kettle with just enough water to prevent them burning. Cook slowly at the side of the stove until they are well broken and mashed. Then press through a sieve and measure the pulp. For each pint allow half-pound of sugar. Place the grape pulp over the fire, let boil for twenty minutes, add the sugar and let boil from ten to twenty minutes longer, or until when a drop of the mixture is put on the plate it will retain its shape without spreading. Stir constantly while cooking. Skim carefully from time to time, and when done pack in small jars.

GRAPE CATSUP.—To make a delicious relish for cold meats, choose ripe Concord grapes, and to each 6 pounds allow 1 pint of vinegar, 2 pounds of sugar, 2 teaspoonfuls of cinnamon, 1 teaspoonful of cloves, 1 of mace, 1 of allspice (all ground), 1 teaspoonful of salt, and ½ teaspoonful of cayenne pepper. Remove the grapes from thei rstems and wash and place them in a preserving kettle with the vinegar. Let all boil for twenty minutes, and then rub them through a sieve. Return the pulp to the kettle and boil until it becomes thick and clean. Then add the sugar and the spices. Boil for twenty minutes, add more pepper if liked, bottle and cork tightly.

GRAPE JAM.—This delicious jam can be made from either the cultivated or the wild

grape in its ripe state. Separate the pulp from the skins and place them in separate basins. Put the pulps in a preserving kettle and bring to the boiling point. Then press them through a colander, add the skins and measure. To every pint allow one-half pound of sugar. Put all together in the preserving kettle, boil rapidly for twenty minutes, stirring now and then, and pour into tumblers or jars when hot. Stand aside until cold, then seal with patent tops, or cover as directed for jelly.

Unfermented Grape Juice.—Choose ripe Concord grapes and remove the stems and any imperfect fruit that may be found. Then place in a wooden bowl and mash well with a potato masher. Put a small quantity at a time in a jelly bag and press out all the juice, or pass through a fruit press. Then strain the liquid through flannel. the liquid into beer or other bottles, with patent corks, until they are brimming full. Then cork tightly and stand in an upright position in a wash boiler, the bottom of which has been covered with slats. Wrap each bottle in a cloth. Pour in cold water to within an inch of the corks and stand the boiler over the fire. Let heat slowly and note the time at which the water begins to boil. Let boil for twenty minutes, remove from the fire, and allow the liquid to become cold in the water. Store in a cool place, laying the bottles on their sides.

Spiced Grapes.—Pour over five pounds of sugar as little vinegar as will dissolve it, adding six cloves and a stick of cinnamon. Boil to a thick syrup. Take seven pounds of grapes picked from the stems, pour the hot syrup over them and let them stand over night. Drain off the syrup, put in a preserving kettle, let come to a boil, and again pour over the fruit. Repeat this process three times, then pour into jars and let stand until cold. Seal and keep in a cool place.

Jellied Grapes.—A very delicate dessert is made of one-third of a cup of rice, one-half a cup of water, and two tablespoonfuls of sugar. Place the grapes in a deep dish. sprinkle with the rice and sugar, pour on the water, cover close and simmer slowly two hours in the over. Serve warm as a sauce or cold as a pudding. If served warm as a pudding, slightly increase the proportion of rice and sugar.

Grape Sherbet.—Allow one-half cup of grape jelly to the same amount of sugar and water. Strain into one quart of rich milk which has been chilled in the freezer and freeze. This makes a beautifully tinted sherbet.

CARE OF BUSH FRUITS.

How Blackberries, Raspberries and Dewberries are Successfully Grown.

Intelligent pruning is imperative to any success in the growing of the bush fruits. On the newer wood the fruit is borne, and the old wood should be cut away as soon as its usefulness is past. Then one must limit the number of shoots that arise from the crown in order that the plant may not be choked with too much growth. In all the bramble fruits—blackberries, dewberries—the wood bears but once. Let us suppose that the shoots spring from the crown in the spring of 1900. It is well to pull out all but four or six of the strongest. By fall these shoots or canes have reached their full stature. In 1901 they will bear their first and only crop. After the crop is off—or before the following spring—they should be cut out entirely. In the meantime—in the spring of 1901—another crop of shoots have arisen to bear in 1902; and thus the biennial succession goes on. Currants and gooseberries will bear in the same wood two or three years, but pruning should keep the bush in constant process of renewal from the root. Add to this ample cultivation of the soil, and a full-ripe berry of any of these sorts far excels its wild prototype.—*Country Life in America.*

A FRUIT CLUB

THERE is a great advantage in associated effort. Our Canadian fruit growers would make more money out of their fruit shipments if associated more closely in business. The man who has a small orchard finds he has too little fruit for a car lot, and is obliged to sell to the traveling buyer; when a little associated effort would bring several such men together who could easily make up a car lot.

Our Secretary, Mr. G. C. Creelman, is wisely encouraging fruit growers' clubs, and no doubt much good will result. Mr. S. Spillett, of Nantye, writes that a small club has been meeting at his house, in twos and threes, to discuss fruit culture. "Dr. Little," he says, "who has 9 acres devoted to fruit of all kinds (his specialty is the Japan plum), generally runs over once or twice a week. The doctor is an enthusiast in fruit, and is an intelligent and tireless investigator."

"The doctor and I have been experimenting with the different systems of growing strawberries, with the result that we have demonstrated to our own satisfaction and to the satisfaction of our clubs that the hill system will yield a larger crop of larger berries of better quality, with less labor in cultivation and picking, than the matted row system, or any modification of it. There are two essentials to success with the hill system that I name. The soil must be rich and the plants must be mulched in the fall as soon as the ground freezes. This will protect the plants from heaving and keep the fruit clean, though some varieties will carry their fruit up clear from the ground. Since our experiments we have got hold of R. M. Kellogg's, of Three Rivers, Mich., in which he gives his experience with the different systems extending over a period of 19 years. He names the different systems as follows: The hill system, the hedge row, half matted row, and the matted row. Mr. K. has no hesitation in declaring that the nearer the system comes to the hill the better the results. Mr. R. claims 400 and even 500 bushels for the hill system. On rich strong land this is not more than I have grown on small areas. My experience says that a quart per plant is a large crop, or about 11,000 boxes per acre. The reasons for preferring the hill system, in which plants are set 1½ x 2½ feet apart and all runners cut, are: (1) The hill of verdure, not soil, can be kept perfectly free from weeds and cultivated (shallow) right up to the plant. The matted row cannot unless knee drill is resorted to. (2) No setting of runners. (3) Easy mulching, but they must be mulched. (4) Easily picked, as berries are all together and not skipped. (5) Larger berries. (6) Larger yield. (7) Better quality; sun and air gets around the plant. (8) All the labor of cultivation can be done by hoe and scuffler.

"This season, by the half matted row, that is part of runners cut, we sold 1,500 boxes from less than ¼ acre, and what we lost by wet and being overlooked would have easily made 2,000 boxes, or 8,000 per acre. One row of hills set 18 x 30 inches, gave as much fruit as a matted row, and it must be noted we have nearly two rows of hills to one matted row, which are set 2 x 4 feet.

"Twenty years ago I raised strawberries as a hobby, just for out-door exercise. I grew the old James Vick and Manchester in hills, and I have seen my little daughter pick one box from a single plant, and 100 plants brought from T. C. Robinson, of Owen Sound, gave 150 boxes of berries, but it was a choice piece of land."

THE ORILLIA FRUIT EXHIBIT

BY T. H. RACE, MITCHELL.

IN consequence of some little controversy regarding the capabilities of the Orillia district for winter apple production, the managers of the fall fair this year made an extra effort in connection with their apple exhibit. In order to demonstrate to me the correctness of their faith in their district and the error of my opinion, they invited me out to judge their fruit. I frankly admit that I feel compelled to modify the opinion that I had been led to by my former visits to that picturesque district. The apple exhibit at Orillia this year was very fine, though still excelling in fall varieties. Going directly from London to Orillia, I was enabled to make comparisons between the two points. Again the superiority of the Alexander and Wolfe River at Orillia impressed itself upon me, and I must be frank enough to say also the superiority of the Spy, Baldwin and Greening. I am not surprised regarding the two last named, for they are not supposed to do well in any of our inland northern districts. And for the Spy, it may be said that the season being quite two weeks later at Orillia than at London, two more weeks would make a considerable difference on the Spy exhibit at the former place. Of the fourteen plates of Spys shown, two lots were of fine size, while all the rest were considerably below the average. But they were all very clean and fairly well colored, and their size will be much improved by the middle of October. The Ben Davis was, this year, considering their season there, quite up to the mark, and the exhibit was fairly large. Two exhibits especially attracted my attention, and are worthy of note, the St. Lawrence the the Stark. In both of these the display was the finest I had seen this year up to the time of my visit, and both of them was a pleasing surprise. In the St. Lawrence display there were thirteen plates, and in the Stark seven. Two very fine exhibits of the Hubbardson's Nonsuch and one of the Blenheim pippin convinced me that these very desirable winter shippers could be grown about Orillia if top-grafted into Tallman or Pewaukee stock. Two plates of the North Star attracted a good deal of attention and were pretty well tested by both judges and visitors as to their quality. The latter is so little inferior to the Gravenstein, if any, that it promises to be one of the choicest fall apples of our northern apple sections. Indeed, its quality, as produced about Orillia, entitles it to be classed as an early winter variety.

On the whole the apple display at Orillia this year was very satisfactory, and what makes it pleasing to a judge to go there is the interest that the people take in the thing. The lawyers, clergymen and tradesmen of the town, as well as the farmers round about, are all there to see and hear and taste, and take an interested part in examining whatever is shown. They believe in making use of an object lesson to make it as far as possible education.

A NEW PLUM.

In connection with my visit to Orillia I want to make note of a new plum that I found on exhibition there. This plum was shown by Mr. Frank Kean, a farmer, who grew it from a Lombard pit. It is similar in size and appearance to the Quackenbos, with a smaller pit, finer quality of flesh, and a heavier and handsomer bloom. It is one of the meatiest of plums, in fact, that I have met with, and will make an excellent shipper. This opinion was endorsed by Mr. Alex. O'Neill, who also examined the plum and was much impressed with its appearance, quality and shipping qualities. We named it the "Orillia," and consider it well worthy of propagation, as the tree is said to be a good grader and regular bearer.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

THE CANADIAN LEAGUE FOR CIVIC IMPROVEMENT—ITS ORGANIZATION AND AIMS.

PAPER READ BEFORE THE WOODSTOCK HORTICULTURAL SOCIETY BY THE HONORARY PRESIDENT, MAJOR GEORGE R. PATTULLO, WHO IS ALSO HON. FIELD SECRETARY OF THE LEAGUE.

THE Canadian League for Civic Improvement was formed in the rotunda of the Board of Trade, Toronto, in February last. Besides the mayor of Toronto, the meeting included a representative body of gentlemen, prominent in various walks of life from different parts of the Province of Ontario. All seemed impressed with the necessity of some such organization, and those who had enjoyed the advantage of seeing what may be done in the way of civic improvement by well directed local effort, were most enthusiastic in urging the formation of a league that would cover the entire Dominion.

OBJECT OF THE LEAGUE.

The object of the league is to unite and secure the co-operation of all ladies and gentlemen and all organizations that are interested in the promotion of out-door art, public beauty, or town, village or rural improvement. This is a comprehensive program and affords an opportunity for every person in a community to do something toward its accomplishment.

IN CITIES, TOWNS AND VILLAGES.

Civic improvement in cities, towns and villages may include better streets, more tree planting, well kept boulevards, more and better kept parks and play grounds, improvement of public buildings, school houses and churches by more general use of vines, ivy or climbers, more artistic grounds about all of these buildings, and a more general planting of shrubs and flowers therein. The erection of statues, the erection of fountains, public lavatories and closets, public gymnasiums and rest rooms, cemetery improvement, improvement of railway station grounds, planting of trees and flowers about factories, the improvement of vacant lots, lanes and alleys, a greater attention to public sanitation, a perfect sewerage system, improved facilities for the disposition of garbage, more artistic public advertising, simplicity in naming streets and numbering houses, fruit and flower exhibitions, cleansing public buildings and public vehicles, a higher class of pictures in our public halls and our various public institutions, improved municipal ar-

chitecture, including all public buildings and bridges, competitions and awarding of prizes to stimulate home-planting among the school children and citizens generally.

IN RURAL DISTRICTS.

Civic improvement in rural districts may also cover nearly as large a field. It includes better roads, more drainage, better fences, more general tree planting, a general improvement of home surroundings, including orchards better cared for, evergreens, shrubs, more generally planted and better taken care of, some flower beds about every homestead, well kept kitchen gardens, the shielding or covering of all unsightly buildings by trees or vines, better sanitation within the homes, universal bath rooms, lavatories and closets, the improvement of public buildings, school houses, school grounds, churches, manses and glebes, by laying out artistically, planting of trees, shrubs, flowers and vines and providing well kept lawns for each, also the establishment and care of parks in every municipality according to size, population and convenience, improving the architecture, approaches and general appearance of bridges, the encouragement of forestry, more particularly in the direction of planting copses of trees as a shade for farm stock, or to replace native trees that should not have been removed. This may be more easily carried on on he banks of creeks, streams, lakes and rivers, whose surroundings lend themselves easily to beautifying. Groves and all woods that could be easily utilized for park purposes and all evergreens that lend beauty to the landscape and other natural features, should be as far as possible preserved. Wayside springs should be preserved and made convenient for public use. Guide boards should also be provided.

AN INVITING FIELD.

The above are some, though not all of the subjects included in the task of civic improvement . It is not possible, within the limits of a paper or address to discuss them at length. They are sufficiently numerous to invite the effort of all our citizens, young and old, rich and poor. To the latter they offer a specially inviting field of profit and pleasure. The poorer sections of several European and American cities have been literally transformed from apparent squalor and wretchedness to beauty and comfort by the efforts of civic improvement reformers. Productive vegetable gardens have replaced ash heaps and back-door debris, while well-kept boulevards and lawns, flowering shrubs, vines and flowers have taken the place of bare yards and general tumble-down surroundings.

SPRING THE SEASON TO BEGIN.

The season of spring is most suitable for beginning the work of out-door improvement, and it is only to out-door improvement that I shall further refer in this paper. Nor can I discuss more than two or three features of this branch of civic reform.

THOSE UNATTRACTIVE SCHOOL HOUSES.

All who have travelled through our country districts must have noticed how unattractive are the rural school houses and their surroundings. The walls of the buildings are bare and unrelieved by a touch of green in the form of ivy, climbing roses or other vines. There are no trees or shrubs about the ground, nor are there flower beds. The grass, if grass there be, is uncut, the fences are not always in good repair, and the out-buildings, forbidding and offensive, are vulgarly exposed to the public gaze. And yet, these are seats of learning! Here is where our children receive their first impressions of education. "Like produces like," it is said, and if so, what must be the impression made by surroundings so rude and repellant? There is also an absence

of a flag pole or flag, which every school section should have, and such flag should fly on all appropriate occasions, familiarizing the children with our national emblem and to teach them to love and honor it though it be "Only a bit o' bunting!"

THE CHURCHES ALSO NEGLECTED.

Then our rural church buildings are little less unattractive than are the school houses. They appear to be neglected and uncared for. One might easily imagine that they were seldom, if ever visited, so cold, bare and uninviting do they appear. If surrounded by a cemetery, as they usually are, it too looks uncared for and ragged in the extreme. Respect for the dead, if not for the living, should suggest an improvement in this respect, and surely our places of worship should be made as attractive in their exteriors as our own homes. The spirit of true worship is sacrifice, and professing Christians should show, not only by the substantial character of their churches and attractive interior, but also by pleasant and picturesque surroundings, that they are willing to sacrifice of both time and means to beautify the temples which they have erected for the worship of Almighty God.

RAILWAY STATIONS AND GROUNDS.

Another direction in which improvement may be made by vines, shrubs, flowers nd well kept lawns, is our railway station houses and station grounds. This is becoming more important because of the building of electric lines of railway, and the same improvements should be made, and indeed insisted upon, by the public, upon the station houses and grounds of electric railways as are necessary on steam railway properties. These improvements should be made a condition of granting franchises to companies when applying to municipalities for them. Another condition that should be insisted upon is that all the land lying alongside the electric railway tracks and belonging to the companies should be kept clear of all noxious weeds, and in general be well cared for. Otherwise these properties may become eyesores to the travelling public and a menace to the crops of adjacent farmers.

SHADE TREES ALONG HIGHWAYS.

Tree planting along the roadways would add greatly to their beauty, and if done judiciously and the trees not planted too closely, while affording a pleasant shade, would not necessarily injure the roadways by holding the water and thereby making them damp or wet.

BEAUTIFYING RURAL HOMES.

A strong effort should be made to induce our friends, the farmers, to pay more attention to beautifying the exterior of their homes and surrounding grounds. Farm houses are usually located advantageously for improvements such as are suggested. An ivy, climbing rose, or any creeping vine would relieve their bare appearance, while some pretty flowering shrubs, a few evergreens, and some flower beds would add greatly to the beauty of the surroundings. But what is still more important, they would probably interest some members of the household and make all more contented with the home and its environment.

COPSES OF SHADE TREES.

Then in the older parts of Ontario and the other eastern provinces, where the larger part of the farms have been entirely denuded of trees when the trees of the forest were felled, some attempt should be made to partially replace them by planting, in appropriate places, copses of evergreens or shade trees. These are not only valuable as shade for the farm stock, but would greatly add to the beauty of the landscape. In the absence of hedges, such as are in ıe

old countries, and which serve the purpose of fences there, trees scattered here and there over the farm add much to its appearance.

RURAL PARKS.

Not only so, but every rural municipality should provide itself with one or more parks, which should become common and convenient resorts. Public gatherings, picnics, private or public, could be held there. Nor would there be any difficulty securing suitable and attractive locations—no township is without them. In many cases they are there ready to hand with forest trees, water convenient, and the general topography all that the landscape gardener could wish; cost of purchase would not be great, nor would the expense of properly keeping them up.

GOOD ROADS AND CIVIC REFORM.

The above suggested improvements are all in harmony with the general improvement of the highways of the country, which in recent years has made considerable advances and has now reached the stage of governmental and municipal reform in the form of good roads improvement.

A CANADIAN PARADISE.

With good roads to drive, wheel or walk over, with the highways tree lined, the landscapes improved by replanting, the school and church properties which we pass beautified by well-kept lawns, shrubs and trees, vines and flowers, and with the national flag floating from a flag pole at every school house, how much more pleasant it would be to travel in the country and how much more proud we would have a right to be of our native land!

URBAN CIVIC REFORMS.

This paper must necessarily be too brief to permit me to enlarge upon even a tithe of what is aimed at by the league for civic improvement in the direction of further beautifying our cities, towns and villages. All of these should have parks, picturesquely situated, wherever possible, tastefully laid out and always well kept. There should be more boulevards, more planting of trees, better kept streets, more cleanly lanes and alleys, an improved garbage system, more official attention given to regulating architecture, building of sidewalks and landscape work. Fountains should be provided as a convenience, and all local historical events could be appropriately marked by monuments or memorial tablets.

NECESSARY AND PATRIOTIC.

By some it may be said that these reforms are comparatively unimportant, and that the Canadian people cannot be sufficiently interested to carry them out. I deny both of these statements. They are not unimportant and are urgently needed to meet the requirements of present conditions. Canadians are now beyond a primitive or primeval stage. They are for the most part able to do more than merely exist. They are now live and enjoy life in pleasant, if not luxurious surroundings. Being well able to afford to do so, it is nationally important that they should not neglect their opportunities and responsibilities. Their sons and daughters are better off, better clothed and better educated than were their fathers and mothers. They have also better homes, better school houses and better churches, but all three of the latter might easily be made more attractive by following the suggestion that I have made, and the more comfortable and attractive the surroundings of young people are made the more happy and contented will they be. Not only so, but they will grow to manhood and womanhood with a greater liking and affection for their parents, their homes and their country. They will thus be better children, better men and women and better Canadians.

OUR HORTICULTURAL SOCIETIES

MR. C. H. HALE'S PLAN FOR INAUGURATING A MOVEMENT TO BEAUTIFY THE TOWN OF ORILLIA.

I THINK the Horticultural Society deserves every encouragement in its efforts to faster amongst our citizens a feeling of civic pride in the beauty of the town generally, and, therefore, in the proper care of their own premises in particular; and also in promoting a healthy rivalry between individuals, and better still, between sections of the town, in contributing to that beauty, this civic pride and rivalry constituting the best means towards the end which you have in view. While, however, I quite agree with you as to the wisdom of laying down some general principles for the beautifying of the streets and private grounds, which will serve as a guide to the citizens, and help in securing uniformity, I have long been of the opinion that so far as practical work in local improvement is concerned it would be better to concentrate the efforts of the society on one street or section which might serve as a model, rather than to scatter your energies over the whole town, which is so large a field that the results obtainable would not be so plain, and would not appeal so strongly to the public imagination.

These preliminary remarks, which I trust you will pardon, as necessary to defining my point of view, bring me to the plan I suggested, which, briefly stated, is that the Horticultural Society should arrange for the organized beautifying and care of one or two streets which might be made to serve as object lessons to the townspeople generally. My idea is that the residents along the streets chosen should be induced to form what might be termed Local Improvement Guilds, and to combine in keeping the streets free from litter, the sidewalks clean, the boulevards cut and the trees trimmed. At a small cost to each resident, each guild could keep a man employed for several days a week in cutting the grass and generally keeping things in order. By all acting together uniformity would be obtained, and the appearance of the street would not be marred by its untidy condition in front of one or two places; moreover, the grass would always be the same height instead of being patchy from being cut at different times.

The streets which I would suggest for inaugurating such a movement are Neywash and Tecumseh. I choose these, (1) because they are short, and can be worked for their entire length; (2) because the residents on them are public spirited citizens who would be likely to take up such a plan; (3) because they are central; (4) because they are already very pretty, and could be made perfect with very little trouble.

There are about twenty-five houses along each of these streets. If from each of these a contribution of ten cents a week, or fifty cents a month, could be secured, a man could be kept employed on boulevards for a day and a half or two days a week. At this small outlay, by joint action, the street could be very much improved in appearance.

The Town Council might reasonably be asked to lend assistance in inaugurating e movement by putting these two streets in a good condition to begin with. In particular they might be expected to improve the appearance of the approaches to Couchiching Beach Park, and to keep them neat, instead of allowing the ground outside the gates to be a dumping ground for rubbish

and seed plot for all sorts of weeds. The council might also be induced to remove the large stones on Tecumseh street (some of which would make an excellent road material) and to grade up both streets, and put the sidewalks in good repair. But on the whole, it seems to me that it would be better that the movement for the beautifying of the town should be based in the public spirit and voluntary effort of the citizens rather than on municipal action.

To the Horticultural Society would fall the work of arranging for the organization of the guilds, and otherwise of fostering the movement. I thought, perhaps, too, that the society might provide a lawn mower and other tools, if necessary, for the first streets.

I have mentioned only two streets for the start, believing that two would be better than one, because a rivalry would be aroused between them. But my hope, of course, is that the movement would be taken up by the other streets, and if others are ready to begin at once so much the better. Brant street, for instance, another street which is particularly well suited for the work of a guild. The slope of these three streets, and their outlook over the lake, make it possible to make them exceedingly pretty. My idea is that on each of these streets where it is proposed to carry on the work, the residents should have a meeting, organize into a permanent body, elect a superintendent or secretary-treasurer, whose duties it would be to attend to the finances, to give instructions to the man employed, and to see that he did his work, and who should be some one who has interest enough and leisure enough to ensure the proper performance of the duties. The guild should also decide annually what scope the work would take on its street, and what amount each would contribute towards the fund. In most cases a flat rate would appear to me advisable, even though there might be some difference in frontage, but in a few instances where the frontage is particularly large, the owner might be willing to give more than the ordinary rate. Where a street is too long for one man two guilds could be formed. I might add that where there is vacant land, whose owner is unwilling to contribute, or in case of residents who cannot well afford to do so, the street should, it seems to me, be kept in order in front of their premises, uniformity being a desideratum.

HOW TO PLANT HYACINTHS.

FIRST in importance among hardy bulbs I should place the hyacinths. Much has been written about putting them in position in the bed and then covering them with soil, putting sand under them, etc.; but in actual practice these slow and laborious methods are not essential to success. If, however, the planter prefers to follow the more laborious—and possibly surer—method, then remove five or six inches of the top soil and cover the surface of the soil where the bulbs are to be set with an inch of sand. One advantage of this method is that it enables the planter to accurately place the bulbs in position as to depth and distance apart, so that the effect at flowering time is more regular as a whole than if planted with a dibber. The layer of sand has its advantage, inasmuch as it provides drainage at the base of the bulbs and minimizes the chances of decay from contact with manure in the soil and from water lodging immediately beneath them. The writer has seen good beds of bulbs obtained by both methods, but the last one described is possibly the surer one.

FLORAL NOTES FOR OCTOBER

BY

WM. HUNT,

O. A. C., GUELPH.

INSECT PESTS. With the advent of autumn weather comes the necessity of artificial heat in dwelling house and conservatory. The drier atmosphere caused by the use of artificial heat means close and increasing attention to plant life to prevent and ward off the attacks of insect pests, all of which appear and increase more rapidly as the need of increased fire heat becomes necessary.

By sprinkling or syringing the foliage of fuchsias, roses, heliotrope, chrysanthemums, ferns, and similar plants on fine sunny days, much can be done to prevent the appearance of thrip and red spider; whilst a shrinkling or even dipping of the tips or leaves of many window or greenhouse plants in a strong solution of tobacco water will generally rid the plants of aphis or green fly, that appears more or less on almost all window plants. Cinerarias, scented leaved geraniums, pelargoniums, roses, calla or arum lilies, calceolaria, and the splendid window plant, "Impatiens Sultani," or as it is sometimes called, the Patience plant or Zanzibar balsam, are especial favorites for the attacks of these little pests to window and greenhouse plants.

The tobacco solution can scarcely be made too strong for the above purpose, as an application of even the strongest solution will seldom harm the most tender plants, except perhaps to discolor slightly the foliage. A sprinkle or syringe with cold water an hour or so after applying the solution will remove all traces of discoloration.

To make the tobacco solution, put a good handful (about 1 pound) of raw leaf tobacco or tobacco stems in a pail, then pour boiling water on them sufficient to cover them two or three inches in depth, cover the pail up closely, and when the liquid is cold strain it off carefully, when it will be fit for use without any further diluting with water. The young growth of many of the

plants infested with aphis may even be dipped for a few seconds in the solution without any danger of injury to the plant.

Where raw tobacco leaves or leaf stems cannot be readily obtained, a good solution of tobacco can be made by unrolling two cigars and place them in a dish and pour a quart of boiling water on them, and treat as recommended for the raw leaf tobacco solution.

A quarter of a pound of quassia chips boiled for five or ten minutes in a gallon of rain water, allowed to cool, and when strained off the liquid can be used very effectively as an insecticide, and is less disagreeable to use than the tobacco solution. Soapy water made from common soap, free from chemicals, can be used for making either of the above solutions. The soapy water causes the solution to adhere more readily to the foliage, thus increasing its effectiveness. The plants should afterwards be syringed with clear water as before recommended.

Chrysanthemums. The early flowering varieties will soon be in bloom. If large blooms are required, some of the smaller late buds should be pinched off. This disbudding process means fewer flowers, but flowers of ver ymuch better quality both in size and color than if the buds re left crowded thickly together. Disbudding should be commenced as soon as the buds are large enough eo be pinched off easily with the thumb and finger. The flowers of chrysanthemums will be improved if the plants are given a little liquid fertilizer once or twice a week whilst the buds are swell ing. The plants should be lifted indoors on cold nights, as two or three degrees of frost will injure the bloom.

The black aphis or black fly is often very troublesome to chrysanthemums, and are very hard to get rid of when once they obtain a hold on the plants. I have found that by dissolving about an ounce of whale oil soap in one gallon of the tobacco solution before mentioned, these pests can be better kept under control. Dipping the infested tips of growth in this solution is the best method of using it. Soapy water made from ordinary common soap, mixed with the tobacco solution, will answer nearly as well as whale oil soap.

Bulb Culture. October is the best month for planting spring flowering bulbs in the garden, as well as for putting varieties for flowering in the window or conservatory during winter. Roman hyacinths and almost all varieties of the narcissi, as well as Dutch hyacinths, succeed splendidly under pot culture. The Roman hyacinths and narcissi can be planted three bulbs in a four or five-inch pot in fairly rich loamy soil. The tips of the bulbs should be just under the surface of the soil after they are potted. Dutch hyacinths should be planted either singly in a four or five-inch pot, or three in a six-inch pot. After potting, the soil should be thoroughly watered, and the pots either buried two or three inches deep in coal ashes or light sandy soil in a cold frame out of doors, or treated the same way in a cool cellar, where they can remain for at least three or four weeks, when they can be taken into the window or greenhouse as required. If left outside during severe weather they should have a covering of straw or strawy manure or some similar material, so that the pots can be got at easily during severe weather. The principal point to be considered in the successful pot culture of bulbs is to keep the bulbs dark, moist and cool until they have well rooted in the soil. Water is seldom required after the first watering until the pots are uncovered and taken indoors, when they will require to be kept quite moist (but not soddened) at the roots, until they have done flowering.

Tulips do not succeed as well for pot plants as hyacinths and narcissi, but can be used very effectively for window or verandah boxes for use in early spring. To secure the best results the boxes should be filled with fairly good soil, and the bulbs planted two or three inches apart and about an inch under the surface of the soil, as recommended for pot culture. The soil should then be well watered and the box placed in a cool cellar and covered up with coal ashes, sand or light soil until spring, when the boxes can be brought up and placed in position as soon as the weather will permit. Early in April is about the time when it would be safe to bring the boxes out of their winter quarters. Some of the more tender bulbs, such as sparaxis and ixias, as well as hyacinths, tulips, narcissi, chionodoxas, scillas and other bulbs can also be used very effectively in these portable miniature bulb gardens. Lawn vases and rustic flower stands make a very effective and bright appearance on small lawns in early spring when planted thickly with early flowering bulbs and treated as recommended for pots and window boxes. Both the boxes and vases would succeed quite as well, if thoroughly covered up ont of doors, if a cellar is not available. In fact they would be much better out of doors than placed in a dry hot cellar, especially if protected so that they would not be frozen too severely. A little frost will not harm them.

In planting bulbs in the open ground the ground should be well dug and loosened up and the bulbs planted so that the tops are about an inch underneath the surface of the soil. Tulips might be planted an inch deeper perhaps to advantage, especially in light sandy soils. Crocus, scilla, and the smaller bulbs should not be over an inch below the surface of the soil when planted. The soil should be raked smooth and fine before planting the bulbs, and packed fairly firmby patting it with the back of the spade after the bulbs are planted. Packing the soil prevents liftlng by frost during winter.

PLANTING BULBS IN THE FALL.

THE time to prepare for the spring feast of flowers is in the fall, says Country Life in America. Too often people forget all about it until they see the tulips in the parks or in their neighbors' gardens, and then they hie to the bulb-seller in a quest for bulbs. Generally speaking, from the middle of October until the ground is closed with frost, the bulbs for spring flowering may be planted. Some of the species are late in ripening—lily of the valley, for instance—and so the planting stock is not available until November. In our northern climate frost and snow may have made their appearance before these are procurable, so the expedient of covering the ground where they are to be planted must be adopted. Coarse bagging spread over the ground and a covering of three or four inches of leaves, hay, or litter of any kind will answer. The best bulb garden the writer ever had—a small one, 'tis true—was planted on New Year's day, the soil having been kept frost-free by the method described. However, unquestionably, the earlier the better. The first customers get the best stock, and the amateur will do well to order his hardy bulbs in September for October planting.

FLOWER AND PLANT LORE.

BY EDWARD TYRRELL, TORONTO.

CHRYSANTHEMUM—NATIONAL FLOWER OF CHINA AND JAPAN.

A PLANT with small yellow flowers was brought from Nimpu, China, in 1764, and cultivated for a short time in the Botanical Gardens, Chelsea, but was soon lost. The next one, known as the old red or purple, the first of the large flowering varieties, was introduced from France in 1795, where it had been known for about six years, and received into the Royal Botanical Gardens, although the ingenious florist of the far east had, with great ardour, cultivated them for many centuries.

The name Chrysanthemum was given by the Greeks, and is derived from the Greek words Chrysos (gold) Anthos (a flower), as it appears they only knew the yellow flower, and this name has since been handed down and applied to this genera of plants, although we have them in nearly all the colors of the rainbow.

Mr. John Reeves, a tea buyer at Canton, who acted as agent for the London Horticultural Society, was very energetic and increased the stock by procuring and sending over numbers of plants of various colors. Mr. Salter says the first English seedlings were raised in 1835, and in 1849 he had over four hundred new varieties.

The first Chrysanthemum exhibition was held in 1843, by the flower loving people of Norwich, Norfolk. At the close of the war with China, 1842, when Hong-Kong and the Isle of Chusan were retained by the British, Mr. Robert Fortune was sent out by the London Horticultural Society to collect rare plants, and one of the curiosities he fell in with was the Chusan daisy. This and another small flower from the same source were the parents of the tribe known from their resemblance to a rosette, as Pom-poms. These were introduced in 1847.

In Japan, a favorite floral decoration at fetes and festivals, consists in artificial chrysanthemum ladies made of many thousands of blossoms and placed in alcoves or summer houses, where they attract numerous admirers. Mr. Parsons, in his "Notes on Japan," says: "The first really fine chrysanthemums I saw were in Yokohama early in November. I was disappointed to find that they were in temporary sheds put up to protect them from rain and sun, and not in masses out of doors, as I expected to see them. They were excellently grown, and in the softened light of the oil-paper shades their colors showed to great advantage. The plants are treated by them much as they are with us. Some plants are reduced to a single stem, on which one enormous blossom is allowed to develop, with each flower stiffly tied to a horizontal support. But the excellence of the gardener is best shown in growing large bushes, which have been known to carry as many as four hundred flowers of medium size, all in perfect condition on the same day. An English gardener who had visited every show within reach of Tokio, including the Emperor's celebrated collection in the palace grounds, said that he had seen no individual blooms equal to the best dozen or so at a first rate London exhibition, but these great plants with their hundreds of flowers were triumphs of horticulture."

This beautiful and useful flower is of very easy culture, and might be grown in pots in the open air in summer, and removed to a sheltered place (but in the sunlight), such as a porch or bay window as soon as the cold weather comes on, or a home made frame might be easily constructed at a very small cost, with lights for a roof, and one could have very nice plants for the house until very late in the season.

CHRYSANTHEMUMS

THE past year made it most evident that there was a great revival of interest in the chrysanthemum, and the interest is being well sustained. Long may it bloom, say I. No flower I ever grew has afforded me more genuine pleasure or brought me in touch with so many enthusiastic worshipers at its shrine.

In preparing for the future I look upon the probationary period out in the frames as the foundation of the plant. The chrysanthemum is naturally a cool growing, hardy plant, and getting it out in the open air (for the glass should always be entirely removed during the day) is merely getting the plant back to its natural conditions, and the result is seen in a close-jointed sturdy little plant that is started in its way rejoicing with a vigorous constitution, and with the glow of health on its shining foliage.

We generally plant out about the middle of May, and a few days earlier or later, as the young stock may need. As regards the soil, the Mum is not over particular, though a light loam is better than a heavy soil. In heavy soil, unless one is very careful with the watering, the plants are liable to be caught too wet some time when a rainy spell sets in, and leaf spot appears in consequence. It will be found a good plan to incorporate about a sixth part of burnt refuse from the garden with the soil at planting time. This refuse is rich in potash and lime, both essential for the building up of the plant, and they help to leaven up the cruder loam.

After the benches are filled, set out your plants ten inches apart each way, and then pound the bed down solid. Don't be afraid of getting it too hard. Make it firm, as your aim should be to keep your plants as short-jointed and dwarf as possible, and this they will not do if they are permitted to run too readily through the mass of new soil.

Just now I said plant ten inches apart each way. This distance is about as little as it is wise to give, if you are looking for the extra quality flowers, though some varieties that, like Lunderbruck, droop their foliage down close to the main stem, may be planted an inch closer. It has been aid that the man that makes two blades of grass grow where only one grew before, is a benefactor. This rule cannot be made to work out in growing exhibition Mums. In this case, the man that tries to grow two flowers where his neighbor is only growing one will always get lost in the shuffle when it comes to the prize-taking.

The question of when, how and what to feed his plants is often the most difficult problem confronting the novice. When to feed is a question that the condition of the plants themselves will best answer. As long as they are keeping a dark healthy green and making large foliage they will not need feeding to any extent. We generally commence feeding about ten weeks after planting, which is, say, by August 1. At this time a top dressing of bone meal and rotten manure is applied, and from then on liquid manure is constantly given. Some growers think it better not to feed before the bud is set, but while, as before stated, you must be guided by your plants, whether the bud is set or not is of little importance if the plants are needing nourishment. We always use a Kenney pump in applying liquid fertilizers, and find it saves much labor. We use chiefly sheep manure for making liquid, with a change to sulphate of ammonia or nitrate of potash in between, using these last in the proportion of one pound to a 50-gallon barrel of water.

As each variety shows color, we discontinue feeding, as experience has taught us to keep well on the safe side, and feeding too long means a soft, flabby, easily injured flower, if nothing worse.—*American Gardening.*

The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

OTTAWA HORTICULTURAL SOCIETY.

THE September show of the Ottawa Horticultural Society seems to have been a complete success. St. John's hall was crowded to its utmost capacity. The chief interest centered about the contest between the children of the various schools for the showing of the finest collection of asters. The prizes for this exhibit were donated by Mr. R. B. Whyte. Seed was distributed to 135 children, and of these 82 brought in exhibits. Before the decision of the judges was read an address was given by Dr. Fletcher on "The Value of Floriculture in the Training of Children," and Mr. Whyte, the donor of the special prizes for the school children's contest, gave a short address in which he thanked the teachers of the various schools for the kindly interest they had taken in the contest and the aid they had so generously given. Mr. Whyte announced that in addition to the money prizes, 700 gladioli bulbs had been given to the eighteen successful children for a competition to be held next fall. Dr. Fletcher announced the result of the judges' awards and presented the prizes. He said that the judges had had great difficulty in coming to a decision, and in doing so had taken into consideration the size, shape and color of the flowers, the strength of the stems and the arrangement in vases.

OUR HORTICULTURAL SOCIETIES.

A GOOD FLOWER SHOW.

THE flower show held in the town hall, Kincardine, was a complete success. It does one good to spend a day or evening amongst such an exhibit of plants and fruits as the people of Kincardine had the day and evening of Wednesday last in the town hall, and the directors of the Horticultural Society may feel pleased at the many expressions of appreciation and praise that came from the lips of most of those who saw the exhibit.

True, our large towns and cities may be able to have much larger displays of flowers and fruit, but it is doubtful if any had greater variety, or a finer collection of healthy plants.

The cut flowers were magnificent and many of the boquets showed superior mechanical skill and taste in the pleasing blending of color and form.

To enumerate the different kinds of flowers and fruit would require more space han is at our disposal, for the many hundreds of beautiful flowers in pots or vases to enumerate would necessitate a systematic catalogue even to name.

Asters of many kinds graced the tables in the center in great quantities, whilst dahlias, gladioli, stocks, salpiglossis, sweet peas and pansies made a display of color that could not but be admired, whilst plants of less note, but equally beautiful, of nearly every common kind, and many rare, forced many to stop and admire.

The fruit, most of which was shown by Mrs. A. Patterson, A. Clinton and Rev. Pomeroy, was a center of attraction. Mrs. J. Hiles and J. S. Gadd exhibited some well laden branches of plums, and John McKay a monster head of sunflower.

The pot plants were good, and must have been a great labor to the collectors. Handsome vases with precious plants were given cheerfully for exhibition, and we learn that all were collected and returned without a break or a mistake.

There were some very handsome begonias of very many kinds, from the large leaved Rex to the most tiny of the race; grand tuberous begonias vieing in beauty with the fuschia; gloxinias, of the most delicate coloring.

Showy spikes of Campanula attracted much attention, as did also agapanthus and two plants shown by Mrs. Shunk were beautiful and rare, for their names we could not learn. One was said by those who know, to be Eden's Bower, very peculiar one sided flower, with foliage resembling a fuschia, but here it looks like specializing too much, and to avoid leaving out any, must say that every flower and plant shown was well worthy of the grower's name being attached.

Music was supplied on piano and by brass band. Addresses were delivered by the mayor and others.—*The Reporter.*

PAPER HUNTING

One of the most exciting of all riding games is paper hunting, or following a trail made by dropping pieces of paper. It can be made as dangerous as steeplechasing or no more so than an ordinary gallop over the fields. The danger is in the fences to be ridden over. There is no limit to the pace but the speed of the leading horse and the necessity of keeping the trail. The "hare" as the man a-horseback who lays the trail is called, is expected to foil his pursuers, the "hounds," as often as he can by the arts of the fox, or by his own ingenuity, only restricted by certain rules of the game.—*Country Life in America.*

Question Drawer

NEW FRUITS.

SIR,—I send you two seedling peaches for your opinion of their value.
Ridgetown. S. RUTH.

These are very fine yellow peaches, of good size and excellent quality; but so similar to Fitzgerald that we do not advise introduction to the public as a distinct variety.

WALLER'S SEEDLING.

SIR,—I am sending you per express two apples. They are something that I cannot get a name for from my friends around here, and I would take it as a great favor if you will write me and tell me the name if possible. The tree grew up from seed with others, but as it turned out good I cut the others away and left this, and we find it a very fine apple.
Napanee. W. T. WALLER.

This is a very beautiful seedling apple, larger than the Duchess, exceeding it if possible in beauty and of better flavor. Indeed, it appears to be a dessert apple of considerable value, and one that should be fully tested. Size, 2½ x 3¼ inches, of very regular even form; skin well covered with deep red; flesh crisp, juicy and high flavored.

TO PREVENT MILDEW ON ROSES.

SIR,—Would you kindly inform me through The Horticulturist what is the best treatment for roses to prevent mildew? I have sixty in one bed and about seventy-five per cent. of them are mildewed. Has the wet season anything to do with it? Would a weak solution of copper sulphate be suitable?
W. A. BROWNLEE.

Answered by Wm. Hunt, O.A.C., Guelph.

There is no really effective method of preventing the appearance of mildew on out-door roses during the prevalence of cold wet weather, or on poorly underdrained soils. Imperfect sub-soil drainage, and extremes of either moisture, drought or temperature will induce mildew. The best known safe remedies are to thoroughly dust the leaves of the plants with flour of sulphur early in the morning when the dew is on them. Repeat the operation once or twice a week during the autumn. If the mildew is very bad, syrings the plants once a week with bordeaux mixture. Ten gallons of this mixture can be made by dissolving 1 lb. of copper sulphate (bluestone) in a pail of luke warm (or rain) water. Tie the bluestone up in a piece of coarse sacking and suspend it in the water to dissolve quickly. Slake the same quantity (1 lb.) of fresh new lime in the usual way, and when ready add cold water enough to make a pailful of the lime solution. Then mix thoroughly the two solutions in about six gallons of cold water, making ten gallons in all. I have found this mixture very good for use in the autumn on rose bushes badly affected with mildew. Apply when the foliage is dry, and keep the solution well stirred.

Gathering up the old foliage carefully from underneath the bushes in late winter or early spring, and burning it, will help to prevent the appearance of mildew, as it destroys the mildew spores.

A sprinkle of air-slaked lime applied to the soil when forking it over in springtime is beneficial.

A solution of sulphate of copper alone, to be effective, would be dangerous to use on the plants, without the use of lime with it. If Bordeaux mixture is applied the sulphur will not be necessary.

HARDY WINTER APPLES.

SIR,—Kindly inform me which you consider the best winter for home use for this section of country.
GEO. WOOD, Erasmas.

Probably Scott's Winter is the hardiest good winter apple for your section. There

are other finer varieties, but they ripen earlier, as for example the Wealthy, which is one of the most beautiful of apples, and profitable for market. In northern sections it is sometimes classed among the winter varieties.

A HARDY RUSSET APPLE.

Sir,—Which is the best Russet apple for this section?

Geo. Wood, Erasmas.

The American Golden Russet has the reputation of being quite hardy, and might be suitable to your purpose.

DEAD SIDE OF CEDAR HEDGE.

Sir,—May I ask you to say, either in the Canadian Horticulturist or by letter if you prefer, the cause of complete death of one side of my cedar hedge about eight years old, the side exposed to the cold winds being O.K. The dead side had bank of snow lying against it all winter. Would it be smothering? How can I repair—by planting small cedars close under the side?

Manitowaning. W. J. Tucker.

The so-called white cedar (Arbor Vitæ) has very tender branches, which a very light weight will destroy. The writer has a beautiful specimen of Thuya Pyramidalis, which is a kindred variety of Arbor Vitæ, of which he was very proud, until a few days ago a small boy climbed it for a bird's nest and every branch touched by his feet turned brown and died. The only hope is to prune off the dead portions and allow the small shoots to grow out; but it can never be again the beautiful tree it was.

We have no doubt that Mr. Tucker's hedge has suffered on the one side from the weight of the snow. While the treatment above described might help to some extent; or, possibly the young trees planted near would grow up and hide the bare places, yet the surest way would be an entirely new plantation if the damage is very serious.

FRANCE BUYING CANADIAN APPLES—THE ENGLISH MARKET.

Not only have enquiries been made at Ottawa by French firms for our apples; but French buyers are here and have already made purchases in the West. One of these buyers wanted to contract 30,000 barrels of seconds for making cider from a firm here. He stated that if he could not buy the fruit he would endeavor to buy the cider. A purchase of 5,000 bbls. is reported as having been made by a French firm in the West, but the terms were private.

There is no doubt that Europe as well as Great Britain is short of apples, and will require considerable imports from Canada and the United States; but whether present prices in Liverpool and London will be maintained when the increased shipments now on the way are received there remains to be seen. A cable from London received here on Tuesday last advised a very strong market, Nova Scotia gravensteins bringing 20s and other Canadian varieties 15s to 18s per bbl.

SPIRAEA ANTHONY WATERER.

THIS charming plant is just beginning to be appreciated. It has many admirable qualities all its own. It is exceedingly hardy, coming into leaf sometimes before the snow is entirely out of sight. It starts from the ground each spring and consequently blooms on the growth of the same season. The new leaves are as pretty as flowers, being irregular, in white, pink and green. Later on they lose the brightness of leaf and the stiffer stems appear, growing from twelve to sixteen, sometimes eighteen, inches, and bearing blooms as large as the stem will hold, of pink flowers lasting in bloom for a long while. The many situations for which such a plant is useful are easily understood, but one I think of just now is too important to omit special mention; that is, for covering graves in country cemeteries.—*C. B. W.*

BULBS FILL SIXTEEN ACRES.

ONE HUNDRED THOUSAND CANNAS, CALADIUMS, DAHLIAS AND TUBEROSES FORM A BEAUTIFUL WORLD'S FAIR FEATURE.

St. Louis—Fifty thousand cannas, with their gorgeous aray of colors ; great caladiums, or "elephant's ears," with their mammoth foliage ; modest dahlias, with their daintly colored petals, and beds of tuberoses, with their wax-like flowers and intense fragrance, combine to make a floral exhibit that will cover sixteen acres of ground on the World's Fair site.

A North Carolina company furnished the bulbs for this display, and Joseph H. Hadkinson, superintendent of outdoor planting for the Department of Horticulture, has charge of the installation. The plants will not be seen in one mammoth bed or tract, but will be scattered in well modelled groups over the northern and eastern slopes of Agriculture Hill.

Many thousand choice tuberose bulbs, planted in beds in the six acre World's Fair rose garden, will next spring send up thrifty blooming spikes, and the fragrance of the blossoms, almost overpowering when breathed alone, will mingle with the more delicate prefume of the rose.

The tuberose bulbs will be so selected and planted that commencing with the early summer there will be a profusion of blossoms, and fresh supplies will constantly succeed one another until frost comes. The caladiums are grown mainly for their foliage, as the blossom is of little value. A large group of these almost tropical plants will be the corner of the terrace ten feet high and a quarter of a mile long that skirts the mammoth Palace of Agriculture on the eastern side. This terrace, straight as an arrow for nearly the full length of the giant structure, makes a curve near the southern end and forms a bank for some of the beautiful artificial lakes between the Agriculture and Horticulture buildings. The caladiums thrive near the water and here they will attain perfection.

That the dahlia may no longer be considered a "back-yard" flower will be demonstrated by the prominent position allotted to it in the World's Fair garden, by far the largest and most pretentious ever seen at any international exposition. Time was when the dahlia was small and insignificant, but florists have taken it from that class and have developed it so that it ranks with the stately chrysanthemum, while blossoms now range from the size of a button to the size of a man's hand. The petals that radiate in a single row from the solidly colored corolla, take on all the tints of the pæony or rose and when cut they retain their beauty for many days.

Until recently the bulbs for all these flowers were imported, and this monster exhibit will demonstrate the progress in the industry of growing, flowering and ornamental bulbs in this country.

Fish Inspector Berndt, of Honolulu, H. T., is making a collection of fish from Hawaiin waters that will prove an interesting exhibit at the World's Fair.

A copy of the pamphlet, "Principles of Profitable Farming," is before us in a new and revised edition. The principles of proper rotation with leguminous crops and the great advantage to be derived by such methods are explained in the pamphlet in a fascinating manner. A description of the Experiment Farm at Southern Pines, N.C., where the best methods of using fertilizers are being studied and put into practice, is also a valuable feature of this publication. A thorough perusal of the book would be of interest and benefit to all practical farmers and copies can be had, free of charge, by writing to the German Kali Works, 93 Nassau Street, New York, N.Y.

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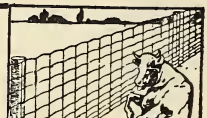

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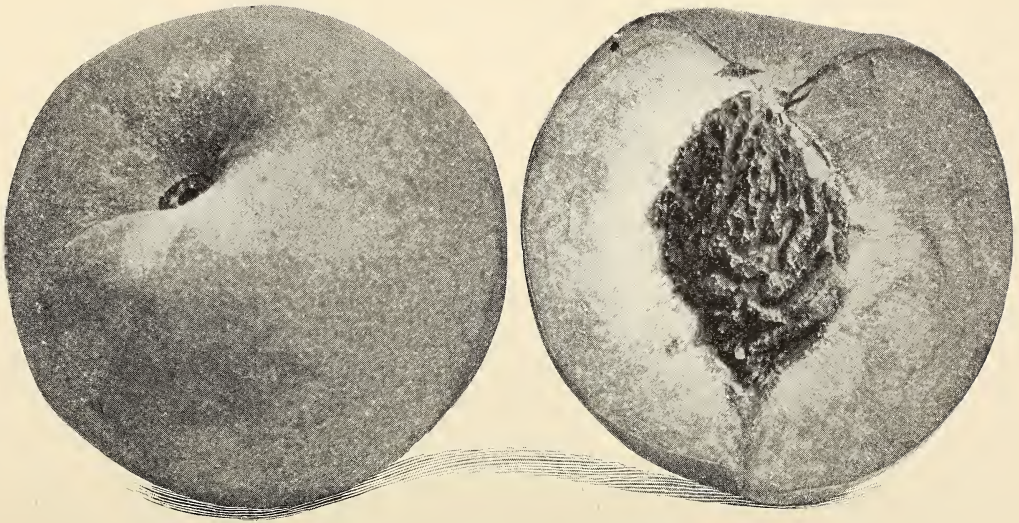


Fig. 2665. The Garfield Peach.

THE
CANADIAN HORTICULTURIST

NOVEMBER, 1903

VOLUME XXVI NUMBER 11

THE GARFIELD PEACH

(BRIGDON.)

A fine yellow-fleshed peach of about same season as Early Crawford.

ORIGIN: New York State.

TREE: Vigorous, moderately productive.

FRUIT: Roundish, ovate; size large, 2½ x 2½ inches; average weight, 5 ounces; color, yellow with red cheek; suture marked; stone free.

FLESH: Yellow; texture tender and juicy; flavor rich and excellent.

QUALITY: Cooking, very good; dessert, very good.

VALUE: Market very good.

SEASON: August 25th to September 10th.

Mr. W. W. Hillborn, our peach experimenter in the County of Essex, writes:

The Garfield Peach is of the Early Crawford type, perhaps a little more highly colored, ripens a little earlier, fruit bud more hardy, therefore more regular crops are obtained of it than of the above named variety. I would plant it in preference to Early Crawford for either home use or market, as it has proved equal in every respect and superior in some points to that old standard variety. I have fruited it for some years and consider it one of the best market sorts grown.

Editorial Notes and Comments

NOVEMBER is as early as the fruit farmer can find time for the Thanksgiving holiday, for his apples and his grapes keep him busy every hour during the month of October.

PRUNING may be commenced this month as soon as the leaves have fallen. The work is much more important than is commonly supposed, and much finer fruit would result if more time and attention were given to pruning and cutting back our fruit trees and vines.

THE MUMMY FRUIT on plum trees should be gathered and burned, because it contains the spores for propagating the fungus for the coming year.

MICE must be guarded against, especially in young orchards. In plots where clean cultivation is given, the trees are quite safe, but, if grass or other rubbish is about the trees, their destruction is almost certain when the heavy snowfalls come. A simple protection is a mound of fine earth packed

about the base of the trunks, taking care first to remove all rubbish.

DRAINAGE of orchard land may be done in open weather of the fall and winter, and is most necessary where the water is level and is not below the tree roots.

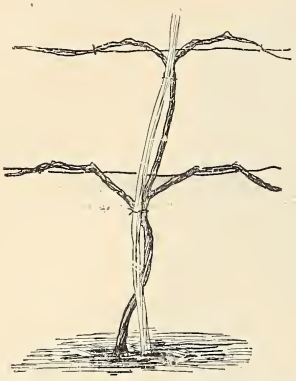


FIG. 2666. THE KNIFFEN SYSTEM OF GRAPE PRUNING.

THE KNIFFEN SYSTEM of grape pruning is the simplest and least laborious, and may be easily understood by a study of the accompanying diagrams. Only two wires are needed in making the trellis. We will describe fully if our readers desire.

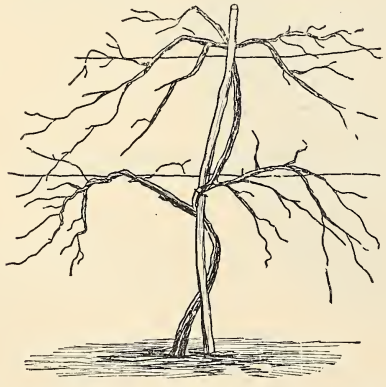


FIG. 2667. THE KNIFFEN SYSTEM.

DWARF PEAR TREES should be well cut back, especially the new wood, in order to keep up plenty of young growth, for on this the finest fruit is produced.

THE COUNTY FAIRS.

THAT our County Fairs are sadly in need of some radical improvements is quite evident to any one who is at all familiar with them. The old unpainted building, often misnamed "the Palace," is enough to give "sore eyes" to visitors, while the grounds are no improvement upon the barest and most uninviting country field, without shrub or shade tree for shade or ornament. This criticism applies to the Bruce County fair grounds at Walkerton, spoken of on page 402; to the Welland County fair grounds at Welland, all of which we have recently visited, and no doubt to many others.

The fakirs, who swarm to these fairs, are a disgrace, and should be routed out by the directors. At Welland the game tables were surrounded by green country youths freely putting up their money in the vain hope of winning a pile of dollars.

THE MODEL FAIRS.

Our Ontario Department of Agriculture has this year offered to aid those fairs which so consent, in several ways; as for example, the appointment of expert judges, the giving of demonstrations in domestic science, in apple packing, and by having experimental plots, right on the very fair grounds. Nor is this all, for demonstrations are also given in chicken feeding, and in the killing, plucking and packing of fowls for shipment to market, in the handling of bees, and in various other interesting and instructive diversions which are a means of education to the young farmers, and which should easily take the place of the fakirs. These offers, made by Mr. G. C. Creelman on behalf of the Department, have been adopted in six places, and their names are: Walkerton, Simcoe, Owen Sound, Brantford, Whitby and Renfrew.

NORFOLK COUNTY FAIR.

The fair at Simcoe on the 13th, 14th and 15th of October was well worthy of the compliment paid it by Mr. Alex. McNeill, Dominion Fruit Inspector, when he remarked to the secretary, "There are but two fairs in Ontario, this and the Industrial!" The grounds are very well laid out; the old "Crystal Palace" was, fortunately perhaps, recently burned down, and its place taken by several tents and smaller single floor buildings. One of these, which was devoted to art exhibits and ladies' work, had three aisles the whole length, with partitions on which the exhibits showed to excellent advantage, while the whole was painted a suitable tint of green. The grounds were in part elevated, and well planted with shade trees, so that altogether the place was attractive to visitors.

Another feature of this fair was the means adopted to interest the officials in the success of the Fair which was continued for three days. On the evening of the second day all the officers, judges, visitors and others were invited to an informal gathering at the Battersby House, where after social converse and light refreshments, brief addresses were given on subjects pertaining to the various exhibits, followed by a free discussion.

THE EXECUTIVE.

Our old-time friend, Mr. H. H. Groff, is the president of the society, and conducts a meeting in a most happy manner. A banker by vocation, but a successful horticulturist and plant breeder by practice and from love of it, Mr. Groff has advanced from being an amateur to the enviable position of a scientific horticulturist, whose contributions to the beautiful in his specialty, the gladiolus, has brought him a world-wide reputation. The superintendent is Mr. W. F. Kydd, successful farmer and horse breeder, whose addresses before the Farmers' Institutes have been much appreciated. He is an energetic Scotchman, and is as deeply interested in the success of the fair as if it were his own private business. But the man to whom, of all others, the working out of this excellent model fair at Simcoe is due, is Mr. Thomas Murphy, the secretary, whose distinguished ability in conducting the Simcoe Fair to such magnificent success, has led to his appointment as President of the Canadian Association of Fairs and Exhibitions.

FIG. 2668. MR. H. H. GROFF, SIMCOE.

A GREAT SUCCESS.

The Norfolk County fair at Simcoe, although by no means perfect, may well be called a model fair, for, not only in point of exhibits, but also in point of attendance it was most exceptional. Fakirs were not allowed on the grounds, but instead there were interesting and instructive addresses by experts. In one tent Miss Mills, of Guelph, and Miss Smith, of Hamilton, gave demon-

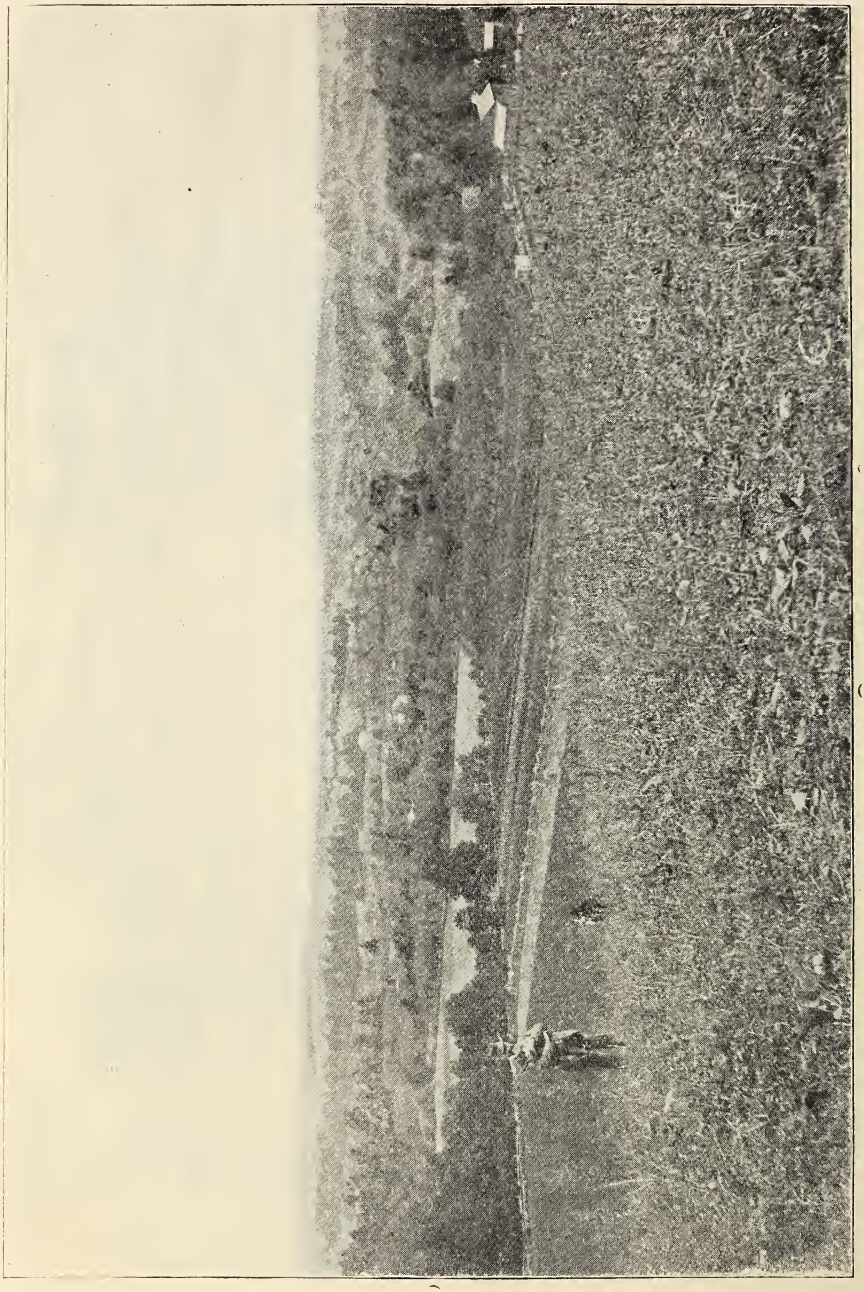


Fig. 2669. A View Near Welland.

strations in cooking; in another place Mr. Alex. McNeill, chief fruit inspector for the Dominion, gave an address on apple packing, and in another part of the grounds Mr. Zavitz gave the farmers pointers on grasses and grains, from experimental plots sown on the grounds for the purpose.

EXPERT JUDGES NEEDED EVERYWHERE.

The fruit exhibit at Simcoe was remarkably good, and the varieties correctly named. There were magnificent samples of King, Spy, Mann, Bellflower, Hubbardston, Cayuga, Greening, Baldwin, Snow, etc., and the premiums were wisely awarded by an expert fruit judge, Mr. T. H. Race, of Mitchell.

At Welland County fair, which we visited the day previous, the case was very different. Expert fruit judges were not secured, and numerous misnamed fruits remained on the table uncorrected. For example, three prizes were offered for the best collection of 12 varieties of apples correctly named, and in each prize collection there were misnomers which remained uncorrected. In the 1st prize collection Gloria Mundi was called Twenty Ounce Pippin, and Cabashea (or Twenty Ounce Pippin) was called King. In the second Pewaukee was named Hubbardston, and an unknown variety, Wagener; and in the third prize collection Pewaukee was called Wallbridge, and some unknown varieties called Wealthy and Maiden's Blush respectively. We submit that such work, instead of helping, is a hindrance to the value and success of any fair.

OUR DIRECTOR FOR LINCOLN, WELLAND AND MONK.

WHILE visiting the Welland Fair we met Mr. E. Morris, who represents the nurseryman's interests on our Board of Directors. With a business in hand too large, and a mind too broad to allow him to talk shop at our meetings, his presence has always been of value in giving information to us from the professional nurseryman's point of view. Mr. Morris is an example of the success which comes to a young man who, in the words of the honorable Minister of Agriculture, possesses the three elements needed, viz., "Pluck, Plod and Perseverance." Brought up in England, the son of an English farmer

FIG. 2670. ENTRANCE TO THE FONTHILL NURSERIES.

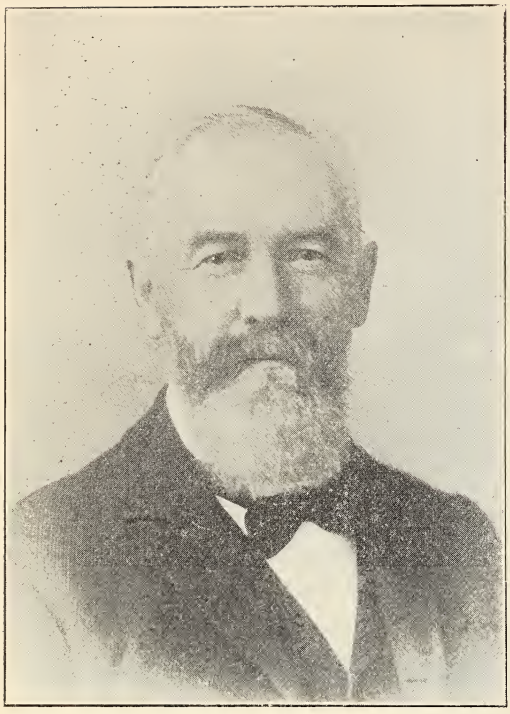


FIG 2671. E. MORRIS, FONTHILL, ONT.

of eight hundred acres of land, he was early trained in the details of agriculture, but after landing in Canada, when still a boy, he was persuaded by his father to enter into the mercantile business, which is carried on with success for some years in the town of Oshawa. This experience gave him excellent business training. Having spent his boyhood days on the farm, he longed for outdoor business, and decided in 1866 to go into fruit growing, and bought a farm in Niagara District for that purpose—being perhaps the first man in Ontario to grow small fruits as a business. His success in this brought him many customers for plants, and he then resolved to go into a general nursery business, and bought a small established nursery of fruit trees, and soon afterwards purchased the Fonthill Nursery. Two years later, finding the business, in all its departments, more than he could properly look after, formed a partnership with Stone & Wellington, under the firm name of Morris, Stone & Wellington, lately changed to Morris & Wellington. With Mr. Morris' natural talent, and love for the business, he soon mastered the practical part of it, and is now acknowledged to be one of the best nurserymen on the continent.

During our visit at Fonthill Mr. Morris gave us a carriage ride through a huge block of about 400,000 apple trees, ready for sale this fall and next spring. "We plant," said he "about 400,000 per annum, and sell about 300,000. That is, we classify the stock when selling size, into first class and culls. The latter we pull and burn, and only good stock goes out to fill the orders. We have to increase our planting each year, to try and keep up with the increased demand; even then, like other nurseries, we often fall short on varieties that suddenly spring into demand."

One feature of the business that is pleasing and shows prosperity of the country, is the greatly increased demand for all kinds of ornamental trees and shrubs. This branch of the business is increasing faster than any other, although it is very evident that apple growing is still at the front in Canada, and in our opinion it justly holds the first place for profit, taking one year with another, notwithstanding the low prices that sometimes prevail.

FRUIT PACKING DEMONSTRATIONS AT THE FAIRS.

SENIOR Fruit Inspector Alex. McNeill is still attending the fall fairs giving his interesting and instructive demonstrations of the proper packing and marking of apples and pears for the export trade. He was at Brantford on October 2, at Burford on October 7, and on the 15th at the Simcoe Model Fair.

PROPER FRUIT STORAGE.

ONE of the most important provisions for successful fruit growing is convenient cold storage. There is no pear grown which is a greater general favorite than the Bartlett, but in its own season there is a surplus of it, which is still greater by reason of the imports from California; consequently low prices prevail for a time until the market clears, when good and remunerative prices rule.

The apple crop in Ontario is an important one, but for want of safe storage the grower is often at a sad disadvantage, for if he sells to the speculator the fruit becomes over ripe in the heaps while waiting the packers; and, if he packs it himself, he must hurry it off before the approach of cold weather. Now a good storage, which could be cooled in summer and kept just above the freezing point in winter, would help in every way; apples waiting the packers could be stored safely and packed dry; Bartlett pears and Crawford peaches could be held over until the prices advanced; while apples to be packed by the owner could be stored as gathered and packed at leisure during the winter or spring and forwarded to the best markets when most in demand.

There is no doubt at all that a reasonable sum of money put in to such a storage as would maintain an even temperature of about 33 degrees at any season of the year, would be a paying investment for a company of fruit growers in any section, or for the individual one whose orchard is extensive. Chemical refrigeration might be too expensive for ordinary circumstances, but ice storage is economical and within the reach of every one.

SUCCESSFUL ICE STORAGE.

The Illinois experiment station gives the following:

An account of the construction of a cold storage house, capable of holding 2,500 bbls. of fruit and of storing apples in cellars insulated for the purpose (E. S. R., 14, p. 356). During the season of 1901-2, 2,000 bbls of fruit were placed in the cold-storage house October 5th, and 70 tons of ice put in the refrigerator. The temperature of the storage room fell rapidly after the ice was put in to about 33° F., and this temperature, or a little lower, was maintained throughout the experiment. The cost of storage per barrel of fruit up to April 23 (about 7 months), was 19.1 cents., or 30.9 cents less than the usual charge for apple storage. Based upon these results it is estimated that the building, if stored to its full capacity each year would pay for itself in five years.

The fruit in the building was examined from time to time during storage. Without exception the fruit kept well. "There was no scald, no withering. The fruit remained plump and in perfect condition, and the percentage of rotten fruits was very small." The results are believed to plainly show the utility of buildings of this character cooled by ice. "Commercial growers of apples can well afford to invest in similar houses and thus add greatly to their profits. The experiences in cellar storage show pretty clearly that horticulturists can not afford to insulate a cellar for storing fruit. The earth is too good a conductor of both heat and cold. Fruit stored in these cellars was more or less wilted and the percentage of rot was quite high.

Experiments were made with Ben Davis and Winesap apples in storing at temperatures of 31, 33, 35 and 37° F. The Ben Davis variety kept better and scalded less at 31° than at any other temperature. The difference was not so striking with the Winesap variety, but was in favor of the lower temperatures.

Another problem investigated was the degree of maturity most suitable for picking apples to be held in cold storage. The results obtained indicate a great superiority in the keeping qualities of mature over immature fruit. The mature fruit in storage showed a much smaller percentage of rot, was less subject to scald, did not shrink as much, had better color and better selling qualities when removed from storage.

In this connection it is worth noticing that the Ontario Department of Agriculture has endeavored to encourage the building of local cold storage houses for farmers' produce, by not only providing plans for their erection, but by advancing a per cent. of the cost.

APPLES IN MIDDLESEX COUNTY.

Mr. John M. McAinsh, Melburn, Ont., writes:

The apple crop in this section is principally Northern Spy and they are exceptionally good quality, better than they have been for years. There is only one buyer around and he is only offering one dollar a barrel, the farmer to pick the apples, board the packing hands and draw the

barrels to the railway station. Now with the big demand and high prices in the British market it seems a ridiculously low price to offer. As you are well posted in the matter I want you to inform me on the following particulars: 1. What is the cost of shipping a barrel of apples from Grimsby to the British market including of course not only freight but commission and other charges? By a barrel I mean whether they are shipped in bulk in large quantities? 2. What prices are being paid by buyers in your section of the country? 3. What do you think would be a fair price for buyers to pay in the vicinity of St. Mary's, Ont., which is our shipping station? At present it looks to me as if apple buyers have formed a combine to gobble up all the profits which is to be got in the apple business this year.

The great mistake of our apple growers generally is here evident. Depending upon the travelling buyer, their apples waste while waiting for him, until they are glad to accept any offer. Then, barrels are so scarce and so high priced, ranging from 40c. to 50c., and so difficult to get in any quantity, that buyers cannot operate, and immense quantities must either go to the evaporator or else waste in the orchards. Apple growers should secure their own barrels in advance, and be prepared for such an emergency, for then they could combine and ship when they chose. As to prices, buyers never pay according to the foreign values, but according to the values in Canadian orchards; and $1.00 a barrel for the fruit is not an uncommon average price offered.

Buyers in Western New York have, says Country Gentleman, been paying $1.75 to $2.25 for the run of apples on trees. In Pennsylvania, according to a correspondent of the same paper, as low as 85c. to $1 has been offered. In West Virginia, according to another correspondent, apples are dull, with choicest at a dollar a barrel.

This season apple growers might safely take the risk which is now taken by apple buyers, and export their own fruit in car lots, and they would no doubt double the net proceeds of their apple orchards.

The freight on apples in barrels from Grimsby to Glasgow is about $1.08 a barrel, to which must be added landing charges, commission, etc. The commission charged in Great Britain is about 5 per cent. of the gross proceeds.

LOW PRICES OFFERED FOR APPLES IN SIMCOE COUNTY.

Mr. Alexander Armstrong, Barrie, complains of the low prices offered in Simcoe county. "We have very few buyers," says he, "to purchase our apples. I have some very fine Colverts and Wealthys, and the best offer I had for them was 65c. a barrel, and now I have from 65 to 75 barrels of Russets, Snows, and other winter varieties, and am only offered 90c. for Snows and $1 for Russets."

Of course, these are low prices for good winter apples, in consideration of the prices in foreign markets; but, so long as winter apples are only worth about $2 in our markets, and barrels are worth 45 cents, and packing, freight and commission costs at least 50 cents more, buyers cannot be expected to take the risks of shipment and offer much more than $1 for the fruit.

HOW TO PACK A BARREL OF APPLES FOR EXPORT.

WHY not each man pack his own apples, and unless he has a good offer, why not combine with his neighbors and make up a car lot for some responsible British apple house. Names of reliable wholesale houses in England, Scotland, Hamburg and Antwerp will be cheerfully furnished by the editor of this journal, who is himself exporting two carloads a week to Glasgow, Scotland. The following directions for packing a barrel of apples have been sent in by Mr. Eben James, of Toronto, and we think them worth giving to our readers:

"The rule most observed by the largest export packers in Canada is to discard the old system of leaving apples to sweat in the orchard, believing it is generally detrimental to the keeping qualities, and instead to pack as picked off the trees. As the apples are picked they are placed on a canvas table resembling a camp bed, the firsts and seconds sorted out, and the culls discarded. The barrel

should be placed on a plank, and the quarter hoops properly tightened and nailed. Apples of a good average size, not the largest nor smallest, but uniform, should be selected for the face, and placed stem end downward on the bottom of the barrel, which should be covered as far as possible without leaving unnecessary holes; follow with a basket selected same as face, then fill in with standard fruit (see requirements), till half full; the barrel should then be jarred, but not shaken enough to displace the face, and as each additional basket is filled in it should be jarred. When filled it should be well racked with a circular board having a pad on one side. See that apples when well racked will be hardly an inch above barrel, carefully turn stem ends up, with the exception of outer row, which are better blossom up; arrange proper sized apples so that any holes are filled, making barrel present an even surface, slightly rising to centre, thereby insuring even pressure. Press in head, line and nail carefully, cut nails preferred. Brand neatly faced end.

Packer must be governed by variety of apples in height in barrel when pressing. Examine occasionally when packing and if you find (providing you have racked well), that skin is severely dinged or broken, press lighter. Storage apples need very little pressing.

STANDARD REQUIREMENTS OF NO. 1 AND NO. 2 APPLES.

THE following is a copy of a resolution by the North American Apple Shippers Association regarding grades, and, although not just the same in wording as the standard set down by our Dominion, are essentially the same and in some respects more in detail.

Resolved, that the standard for size for Number 1 Apples shall not be less than two and one-half inches in diameter, and shall include such varieties as Ben Davis, Willow Twig, Baldwin, Greening and other varieties kindred in size. That the standard for such varieties as Romanite Russet, Wine Sap, Jonathan, Missouri Pippin and other varieties kindred in size shall not be less than two and one-quarter inches. And further, that number one apples shall be at time of packing practically free from the action of worms, defacement of surface or breaking of skin; shall be hand picked from the tree, a bright and normal color and shapely form.

Number 2 Apples shall be hand picked from the tree; shall not be smaller than two and one-quarter inches in diameter. The skin must not be broken nor the apple bruised. This grade must be faced and packed with as much care as No. 1 fruit, and no wormy or spotted fruit packed.

We have adopted XXX to mean No. 1 and XX to mean No. 2. Besides this, we pack an extra grade and call it Fancy XXX.

THIRD CLASS APPLES NOT WANTED IN ENGLAND.

WE have heard so much about the failure of even the common stock of apples in England, which are used for cider and preserves, that we had about decided on putting up some third class stock for export, as an exceptional venture, but our Glasgow consignee does not favor such an experiment even this season. He says: We have been making inquiries of the preserve makers and find they have contracted for nearly their full requirements for the season. Therefore, I cannot recommend you to ship this third grade of fruit, as there would be practically no demand for it here; and, if left to the mercies of the preserve makers on this market, they would be inclined to give very little for it, and I am certain it would not pay freight and expenses.

CANNING FACTORIES AND JAM FACTORIES.

THE Oakville Star of October 1 strongly advocates the establishment of numerous factories for the preserving of fruit throughout the fruit belt of Ontario. The recent losses incurred by growers because of glutted markets at home, and the unsatisfactory provisions for carrying our tender fruits either to Great Britain or to the United States in a fresh state, certainly bring us face to face with the puzzling question, How can we place our tender fruits in those parts of the world where they are most wanted. The Star answers:

"To do this, the fruit must be cured, either as pulp (partly preserved or dried), for foreign jam houses, or canned or made into good jam. This means the establishing of canning factories and jam houses in all our fruit belts. Then the fruit could be shipped anywhere and find a ready market. English people are great consumers of jams preserved so that they can be used as a jelly. They do not relish our canned goods, but use thick jams extensively as a substitute for butter. There is no reason why Canada should not supply Britain with great quantities of jam which the Englishman prefers to have put up in glass, in fact he will not buy it unless in that way. In the Northwest during the long winters canned fruit is found almost essential to health, and is being used more

and more each year. This means a great market some day and the district that gets in position to supply this want will profit in a marked degree.

In line with the above, and in confirmation of the position taken by the Star, we have just now received an urgent inquiry from England for fruit pulp, from Messrs. Rothon & Co., 54 Great Tower street, London, E. C., as follows:

SIR,—We shall be glad to know if you can offer us any Fruit Pulp of any description. We are in a position to handle any quantity, large or small, of all kinds, including Apple Pulp, and if you can make us any shipments we can secure for you a very good price indeed. If you can conveniently do this, we shall ask you to make us a small trial shipment as early as possible, and if you will kindly cable us on receipt hereof what you are in a position to ship, we shall be very pleased to reply by cable, giving you any information that you may require.

In view of the risk attending the export of plums and peaches and pears in cold storage, and the expense involved, it is evident that a great saving would be made by first reducing these fruits to pulp, or jam, and exporting the manufactured product. Not only would there be a great deal less bulk to transport, but the charges would also be reduced, because such goods would carry in ordinary storage. Herein appears to be a good field for co-operative factories among fruit growers, so that the advantages would be retained by them and not given over to a company.

THE BRITISH JAM TRADE.

THE following article from the Scottish Trader will give an idea of the extent of the British jam industry, and of the prices paid for fruits used in jam making: "Not for five and twenty years has jam been so dear as it will be for the next twelve months. The soft fruit season has closed, and raspberries made as high as £45 and even £50 a ton. The plum season is in full swing, but values range from £30 to £40 a ton, so that jam cannot possibly be cheap. The above quotations refer quotations refer to jam fruit only. Of course, dessert raspberries made considerably higher prices. We saw quantities sold at 9d. and 1s. a pound first hand, these prices being equal to £84 and £112 a ton respectively. As to the plums, the Victoria, Pond's Seedling and Prince of Wales plums are making from 7s. to 10s. a half bushel. The former is largely used by jam makers, being, in fact, one of their stock plums. At from £30 to £35 there are buyers open to purchase hundreds of tons of plums. These fruits, especially the imported samples, are more plentiful than raspberries, currants, or strawberries were. The jam manufacturer is depending upon the plum to replenish his stocks, though the latter will at the end of the stone fruit season be far under the average of previous years. The bulk of the plums on sale at the present time come from Holland, Germany and France. Though it is stated in the official statistics that American plums are on the market here, they are never used for jam, being far too expensive. Continental plums are plentiful. About 100,000 packages of these fruits have been unshipped in English ports during the past six days. Out of this quantity over 80,000 packages full had been grown in Germany. This season German shippers are monopolizing the plum trade of the British markets. Quite 75 per cent. of the plum jam that will be sold as new season's jam this year will have been made from German plums. Of course, these increased foreign fruit shipments are due to the failure of the British fruit crop. If German plums were not used in English jam we should get little of that popular preserve this season. As it is, despite the seemingly large arrivals referred to, English jam will be unusually dear. It is unfortunate that jam makers have not only had to face a great shortage of fruit and high prices, but that sugar has also increased in value."

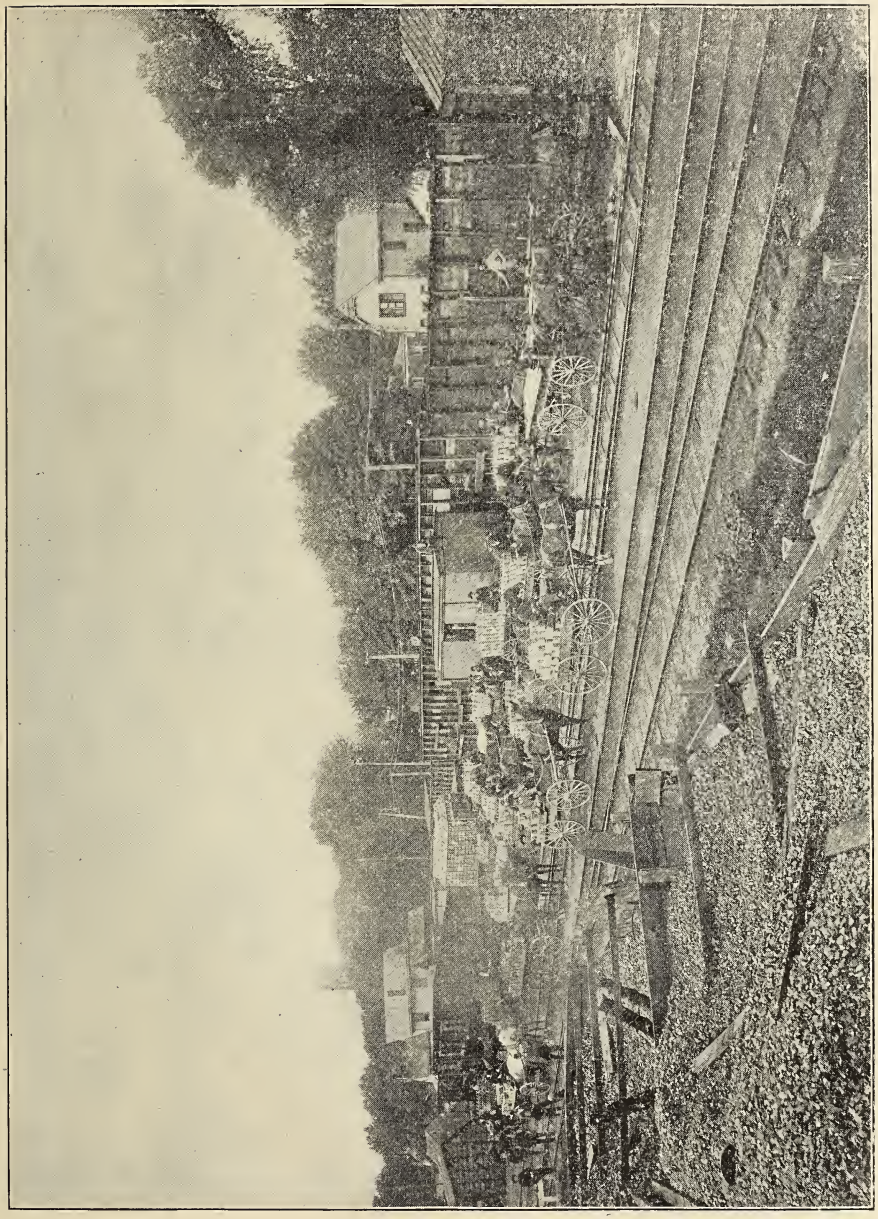


Fig. 2672. Loading Fruit at St. Catharines.

FREE SUGAR.

THE Sun, in discussing the same question of reducing our fruits to jams, jellies, etc., points out that Canadians are handicapped in this enterprise by the tariff, as follows:

The offering of a car load of plums at about one per cent per basket above the cost of the baskets should suggest to the fruit growers of this province the need of relief from oppressive conditions. If it were not for the tariff, that enhances the price of sugar and glassware, Canadian jams, jellies and preserved fruits would find a market wide enough to make a demand for all the products of our orchards and fruit farms. Although at great disadvantages with regard to the growing fruit, the British canners and jam producers are successfully holding markets in all parts of the world. Canadians are handicaped in competing for outside markets by a duty on sugar which amounts to about one-third of the cost. This makes it impossible for a fruit canning enterprise to succeed in any market open to competition. If the sugar duty were not enough, a duty of 30 per cent. on glass jars is a certain prohibition on the most attractive method of preserving for the market.

This journal has no leanings to party politics, but, if free sugar would foster the interests of fruit growers, we hope the tariff may speedily be readjusted so as to facilitate the development of such an important industry.

OUR CANNING INDUSTRIES.

THE canning factories seem to have revived in a wonderful manner of late, and are proving a great boon to the fruit growers situated near them. I think, said Mr. E. D. Smith, M. P., of Winona, that factories for putting up our surplus fruit are needed in every fruit district, and fruit growers would find it a good investment to put their money into them. Plums, especially, which this year were a drug in our markets, should be made up into jam.

At St. Catharines the other day our president, Mr. W. H. Bunting, introduced us to several growers who were considering the question of putting up their Kieffer pears for export. "I prefer," said Mr. Griffis, "to sell mine to the factories and save the trouble and the risk of exporting them. I received one cent and a half a pound for all my peaches, and I am offered one cent a pound for my Kieffers. Now I don't think that a bad price when you consider that you have no expense for baskets, freight or commission."

THE GRAPE HARVEST.

ABOUT St. Catharines the grapes are turning out very well, and Mr. Bunting told us that everyone was trying to get through shipping as soon after the middle of October as possible. Messrs. Titterington Bros. and Mr. McIntee were loading cars for the Northwest, and splendid refrigerators they were—cars such as fruit men ought always to have, but alas, seldom get, aside from centres where other railways are in close competition.

"We will ship out from St. Catharines this season," said Mr. Bunting, "150 carloads of grapes, largely Concords, and of these at least 50 cars go to the Northwest."

"These six and two-third quart baskets are not the thing," said Mr. Robert Thompson. "They do not pack well together, and if you put peaches in them they go for half baskets, *i. e.*, half of the twelve-quart basket."

"How many baskets of grapes do you put in a car?" we inquired.

"Owing to the minimum for car lots of fruit being fixed at 20,000 lbs., we are obliged to put in from 2,300 to 2,400 9-lb. grape baskets to make a full car load. This makes it frequently necessary to pile the baskets from 10 to 12 high in the car, which is considerably higher than is conducive to the best carriage of the fruit. If the minimum could be reduced to 16,000 lbs. for fresh fruits, and suitable cars furnished in large enough numbers, it would be a great boon to the fruit industry of this district."

THE BENEFIT OF SPRAYING APPLE ORCHARDS.

THE experimental spraying operations carried on during the spring and summer by the Fruit Division, Ottawa, in

the Woodstock and Ingersoll districts have been satisfactory beyond expectations. Mr. W. A. McKinnon, chief of the fruit division, says that they furnish the best illustration of the necessity of spraying that he has ever seen. Aside from the opportunities for comparison between sprayed and unsprayed orchards, chance has provided some remarkable proofs of the value of the operations. In every case where a single tree or part of a tree in one of the sprayed orchards was neglected the fruit on such tree or part of tree is to-day hardly worth the trouble of picking, while on all sprayed portions scab is hardly to be found.

BRITISH COLUMBIA FRUIT.

FRUIT growers in Eastern Canada will have to bestir themselves if they wish to hold their share of the trade with Manitoba and the Territories. British Columbia is a formidable competitor, and only the best quality of fruit put up in proper packages will be found salable in Winnipeg and other western cities and towns.

In a recent issue the Victoria Colonist says: "Still another carload of fruit is being shipped to-day by Messrs. Stewart & Co., Yates street, to Winnipeg, consisting entirely of Victoria and vicinity products. The car is made up of packages of apples, pears, plums and prunes of a quality that need fear no competition in the east. Messrs. Stewart & Co. have already on hand the preparation of two and probably three more carloads to be dispatched next week to the same destination."

WHITE PEACHES.

THE white peaches are the favorites in Great Britain, and were if not for the fame of the Early Crawford would no doubt be so in Ontario. The Champion, Steven's Rareripe and Carlisle are three good varieties of this type. The latter commends itself in our experimental plot at Maplehurst this season. It is large, of delicate tender flesh, and good flavor. In season it is latest of all, in use for the table until the end of October.

REPORTS OF EXPERIMENTAL SHIPMENTS OF PEARS AND PEACHES.

THE editor of this journal has forwarded to Glasgow three carloads of Bartlett pears during the month of September. Nearly all of these were at his own risk and expense, although three or four other growers put in some small parcels. They were packed without wrapping, in half cases, with excelsior padding, and shipped in refrigerator cars from Grimsby to Montreal. All were perfectly green and hard leaving the shipping point. They were in two grades, A No. 1 averaging about 2¾ inches in diameter, and No. 1 averaging about 2½ inches.

CAR NO. 1.

This carload of 820 packages was made up as follows: L. Woolverton, 567 packages; E. J. Woolverton, 30; C. E. Woolverton, 50; S. M. Culp, 173. The thermograph showed them to have been carried from Grimsby to Montreal at a temperature of about 53 degrees F., and the inspectors who examined them at Montreal, before loading them on the Lakonia, reported them in good condition; but, a cable on arrival at Glasgow reported a "large quantity overripe and unsalable owing to too high temperature on shipboard."

The following is a detailed account of 565 packages marked L. W.:

Glasgow, 28th Sept., 1903.

9 half boxes (20 lbs. of fruit), No. 1 Boussock, at $1.77.

220 half boxes (20 lbs. of fruit), No. 1 Bartlett, at $1.58.

15 half boxes (20 lbs. of fruit), No. 1 Bartlett, at $1.46.

38 half boxes (20 lbs. of fruit), No. 1 Bartlett, at 97 cents.

3 half boxes (20 lbs. of fruit), No. 1 Bartlett, at 30 cents.

30 half boxes (20 lbs. of fruit), No. 1 Bartlett, unsalable.

152 half boxes (20 lbs. of fruit), A No. 1 Bartlett, at $1.95.

30 half boxes (20 lbs. of fruit), A No. 1, at $1.71.

5 half boxes (20 lbs. of fruit), A No. 1, at $1.34.

1 half box (20 lbs. of fruit), A No. 1, at 55 cents.

26 half boxes (20 lbs. of fruit), unsaleable.

9 boxes (40 lbs. of fruit), A No. 1, at $3.47.

2 boxes (40 lbs. of fruit), A No. 1, at $2.01.

15 half boxes Champion peaches, unsalable.

Notwithstanding the loss of 71 cases, which arrived overripe and had to be thrown out, the net proceeds of the 567 packages was $555.18, or about $1.00 each.

The account sales of the other lots were passed on to the other shippers. Suffice it to say, they netted about $1.50 a package.

This first experimental shipment of this season simply proves the excellent possibilities before us if we could depend upon the ocean storage, and it does seem unfortunate that with all the subsidies granted these lines for cold storage, we fruit growers cannot have our peaches, pears and plums carried at a proper temperature, and a golden opportunity to get high prices for these tender fruits, lost, which should if made practicable, put new life and spirit into the hearts of Ontario fruit growers.

WARM INSTEAD OF COLD STORAGE.

Our consignee, in writing, says: "A percentage of these pears arrived here in a very bad condition, and this, I understand, was due directly to the temperature having been kept too high while on board the steamer. It appears that the refrigerator chambers were packed full of fruit, and therefore the cases in the centre of the chamber were blocked in from the air, and it was impossible for the engineer to keep the temperature down sufficiently. The pears were carried at a temperature of 44 to 46 degrees, and I have asked Mr. Brown, the government inspector here, to write you, as he is making a full report thereon to the government. Some of the cases of pears were in perfect order, and sold remarkably well, but others again were in ripe and overripe condition. Had the fruit been all in green condition, the A No. 1 would have realized $2.00 and the No. 1 $1.50, but as explained above these ripe and overripe had to be allowed for. The fifteen boxes of peaches were just a mass of decayed fruit and could not be offered for sale at all. The pears would have looked better had they been wrapped in paper. There were also some California plums in the same chamber which also landed in bad condition. They should not have put such a great quantity of fruit in one chamber, nd should have left air passages so that the temperature could have been kept at a right degree."

THE GREENING IN PERTH COUNTY.

THE finest samples of the Rhode Island Greening apple that I ever saw (says Mr. T. H. Race, of Mitchell) were brought in to me a few days ago by a farmer of Hibbert township, county of Perth. The farmer, Mr. John Kemp, has five trees of the same variety in an orchard of perhaps two acres, which has not been broken up for years. The apples brought to me were off one of the five trees, but were so much larger and cleaner than the fruit off the other four that some per-

sons had persuaded Mr. Kemp that they were not the same variety. They come like this every year, Mr. Kemp said, though never quite so fine as this season. I inquired for a cause, but was told that the trees got the same care, and that was very little except some pruning out. Mr. Kemp finally told me that he raised a large flock of turkeys every year, and that all through the season, and every season, they roosted in this particular Greening tree. That partly explains it, I said; that at least explains the size of the apples, but does it explain the absence of worms? Why should the very superior apples of the turkey fertilized tree be exempt from worms, while the fruit on the other four trees was badly affected? The case at all events shows the benefit of top dressing on sod that is never broken up.

AT THE WESTERN FAIR, LONDON

BY T. H. RACE, MITCHELL.

THE Horticulturist has made a number of well-merited references to the fruit display at the Toronto Industrial exhibition. Let me say a few words about the exhibit at London. Everybody knows that the arrangement in the horticultural building at London is much better than that at Toronto, and it is easier to make the display attractive. This year, after the judging was done and everything was put into order by the committee in charge, the effect in the building was very pretty. The fruit itself, though not so plentiful as at Toronto, was superior to it in quality, and being a week later had a little more color. As an object lesson and a means of education the display at the Western is decidedly in advance of that at the Industrial. The low fruit tables running crossways of the hall shows the fruit to better advantage, and is easier of access to those who wish to handle it and ask questions about it than the higher tables with guard railings used at Toronto. And when these tables are decorated with flowers and plants, tastefully placed among the fruit, and the sides of the building on either ends of the fruit tables all covered with a handsome floral display, the effect is very pleasing and attracts great numbers of people.

The London Horticultural Society is deserving of great praise for the part they take in making the display at the horticultural hall a thing of beauty and a joy to everybody who goes in to see it. They occupy a central position in the hall, with the apple tables to the south and the finer fruits to the north of their exhibit. Their display, contributed by the members of the society, is shown on a large pedestal, crowned with some of the larger plants and covered on all its sides and surroundings with cut flowers and annuals grown from seed distributed by the society. For this enterprising and magnificent display much credit is due to Mr. Gammage, the well-known London florist, to Dr. Bethune, to several of the ladies, and to Mr. C. J. Fox, who is generally in charge. Taken altogether, the horticultural hall was one of the most attractive departments of the Western Fair this year, and the artistic arrangement of fruit and flowers together was an object lesson of real value.

AN ENGLISH NURSERY

BY THE EDITOR.

ON Whit Monday, June 1st, we took a day out of the great city of London to visit the nurseries belonging to Mr. Cheal, whose visit to Maplehurst last September was so welcome.

His home is situated about two miles from Crawley, where we lunched in the old George Hotel, at which royalty so often lunched in coaching days—a half-way house between London and Brighton.

Mr. Cheal's home is a lovely old-fashioned house, half hidden in ivy, clematis, akebia and other climbing vines, and surrounded by beautiful hedges. On one side of the beautifully cut lawn was a rockery well considered a work of art, with rambling walks amid trees and rocks and pools of water, approached over an artistic rustic bridge. Among the rocks was planted a collection of hardy plants, suitable to the conditions and giving one the impression of living in the midst of nature's garden. So popular has this style of work become, said Mr. Cheal, that some men are now making rock gardening a specialty.

The English methods of cultivation are very different from those of our Canadian nurserymen, who cultivate their whole plantation by means of horse labor. Mr. Cheal's nursery is a succession of gardens, separated by lofty walls of hawthorn and hornbeam hedges; and each of these gardens, with its wealth of evergreens, fruit trees, flowering shrubs, hardy perennials, etc., these acres of nursery stock —all are cultivated by hand! "Such a method would ruin Canadian nurserymen," we said. "Our people do nearly everything by horse work, and as little as possible by human labor."

"Land with us is too valuable to plant at such distances as you do, and labor is much lower priced," said Mr. Cheal. "We pay only from $4 to $5 a week for labor."

Well, of course, here is a key to the situation; yet we believe the time has come when English farmers and nurserymen should take some lessons from us if they would continue to prosper.

The greater part of Mr. Cheal's business is in connection with large contracts for the designing of parks, for which he supplies the stock and carries out the work; still the firm does quite a business in fruit trees. They make quite a specialty of growing apple trees on English Paradise stock, claiming that these would be profitable if planted in a wholesale way.

The varieties of apples cultivated differ wholly from those grown with us. Cox Orange Pippin heads the list, and is followed by such varieties as Pearmain, King of the Pippins, Queen, Lord Derby, Bismarck, and many others; while such names as Baldwin, Spy, Greening, King of Tompkins, Snow, etc., are not to be found.

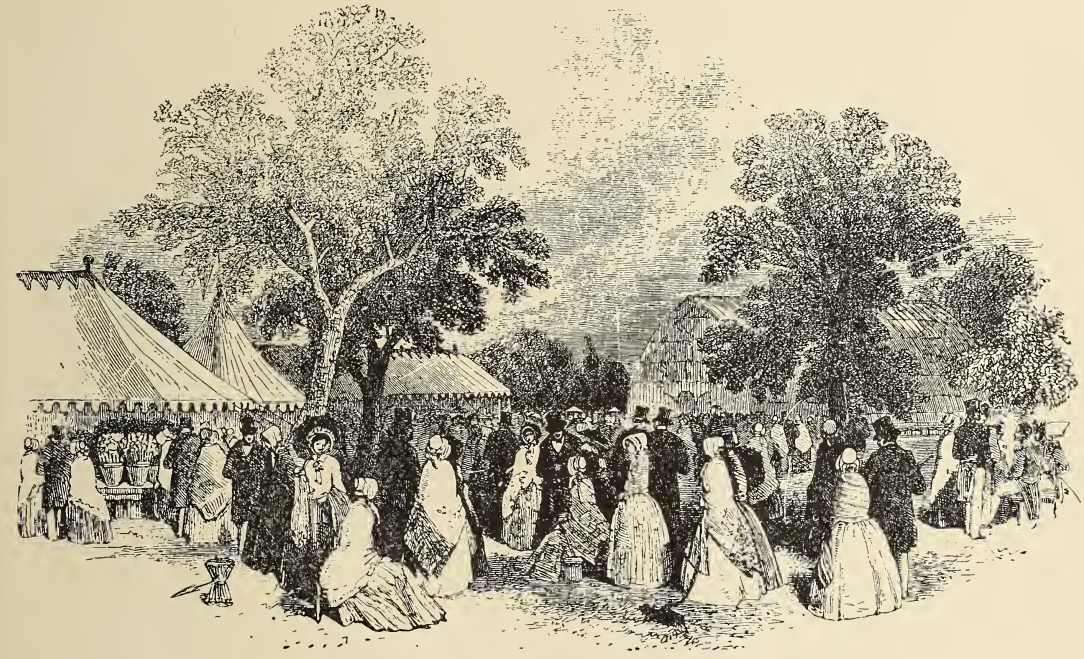
Evidently the conditions are so different from ours that different varieties are needed —and it would be vain to expect much satisfaction in Ontario with English varieties as in England with those which originate in Canada.

The hedges at Mr. Cheal's nursery are exceptionally fine, but so high and large that the work of cutting must be enormous. "We are obliged to keep them," said he, "for pro-

tection against the winds." Perhaps; but in our humble opinion, the cost of keeping these numerous immense hedges in good form, would pay for all the injury from the wind and leave a handsome margin in the bank.

The prettiest of the hedges we thought was the Hornbeam, presenting as it did such a pretty light green color, and bearing the shears wonderfully well.

For ornament certainly give us these beautiful English hedges—nothing could be a greater decoration to the country roads and lanes; but it is the number of them that surprises us and leads us to wonder if our British friends are, after all, only "playing at farming" when they divide up their farms into such tiny divisions, with hedges so numerous.



Scene at a Show of the Society in 1849, at Chiswick.
FIG 2673.

THE ROYAL HORTICULTURAL SOCIETY

IN view of our reference to the Temple show, of the Royal Horticultural Society, of London, the following extracts from a history of that society, which recently appeared in the Journal of Horticulture, may not be out of place:

The present period is an interesting one in the history of the Royal Horticultural Society. It is a period of great prosperity and of wonderful activity. The society's influence is visibly penetrating the provinces and parishes of the three sister king-

FIG. 2674. THOMAS ANDREW KNIGHT.

doms, and we have been surprised and pleased on many occasions recently to discover Fellows of the Royal Horticultural Society in places whose positions could not in the least have brought them into direct touch with the society or its management.

The Royal Horticultural Society was established in 1804, and measures were adopted in the spring of the present year whereby the Centenary in 1904 may be celebrated in a manner worthy of the Mother Society of English Horticulture. How satisfactory and commendable this proposal to build in London a great hall and offices for the society was, has been overwhelmingly demonstrated at the special general meeting held on March 21.

The society in these later days is indebted for its popularity, its advertisement, and its success, almost entirely to the frequent exhibitions and annual conferences, and secondly to the issue of an invaluable journal of the transactions of the society, and the secretarial vigilance. In the early days of the Royal Horticultural Society, before the exhibitions had become a feature of the yearly program, the society's greatest work and usefulness centralised at and radiated from the experimental garden at Chiswick. This has now altered. "All is change, woe or weal." When, in a few years, a powerful and consolidated fellowship have accomplished the magnificent task now lying before them, a new garden, fruitful in possibilities, will be assured, from the best of all reasons, that it is a necessity.

The most valuable worker and chief instigator in the formation of the society was Thomas Andrew Knight, F. R. S., whose name is associated with the horticultural society during a long course of years, and ever regarded, says Sir Trevor Lawrence, "with the highest honor by all connected with it." He then proceeds: "Mr. Knight, whose name and virtues are commemorated by the Knightian Medal of the Society, had devoted much attention to scientific horticulture and vegetable physiology, on which subjects he had communicated several papers to the Royal Society. He lived in Herefordshire, in the midst of a cider and perry country, and had been struck by the unskilful and unscientific management of the surrounding orchards. The idea of founding a society to bring together British horticulturists occurred to him in 1804. He put himself into communication with Sir Joseph Banks, P.R.S.,* and others; the result being that on March 7, 1804, the new society was founded. Its objects were defined to be "to collect information respecting the culture and treatment of all plants and trees, as well culinary as ornamental; to foster and encourage every branch of horticulture and all the arts connected with it, and to give premiums for improvements in horticulture whenever it shall be judged expedient to do so."

* * * * * *

In 1809 a royal charter of incorporation

* Sir Joseph Banks, Bart., was President of the Royal Society for forty-one years. He died in 1820. A new edition of his Journals, during his voyage with Captain Cook, has lately been published, edited by Sir Joseph Hooker.

was granted to the society whose object is therein briefly described to be "the improvement of horticulture in all its branches, ornamental as well as useful." * * * In 1811, on the death of the Earl of Dartmouth, the first president, Thomas Andrew Knight, Esq., the founder of the society, was elected president, a post he occupied for twenty-seven years, to the signal advantage of the society and of horticulture generally.

* * * * * *

In 1818 and the following years an experimental garden was established at Kensington, with a nursery at Ealing; and permanent offices were acquired by the purchase of No. 1 Regent street, at a cost of £4,200. About this time, the annual subscription, which had originally been £2 2s., was raised to £3 3s., a rise which seemed rather to encourage than to cheque elections, 845 new fellows having joined the society in 1891-21. In 1822 the gardens of the society were moved from Kensington and Ealing to Chiswick, where a thirty years' lease of 33 acres had been obtained from the Duke of Devonshire, the lease being renewed in 1852 for a like period. The gardens of the society have continued at Chiswick ever since, but their area has been reduced from 33 acres to 12.

A valuable feature of the society's work —one which has had a great and enduring influence on British horticulture—may well be referred to here. As early as 1818 it was recognized that, funds permitting, a horticultural society could not do better than take steps to obtain from countries beyond the borders of Europe valuable and interesting trees, shrubs, plants and seeds. The earliest arrivals came from China and from India. In this way many valuable ornamental plants were introduced into Great Britain, such as azaleas, peonies, roses, camellias, chrysanthemums, etc. One of Mr. John Reeve's introductions from China was the lovely Wisteria sinensis, which reached England in 1818. The large tree of this climber at Chiswick is probably a relic of the original introduction. The success of these early efforts encouraged the society to send out collectors at its own cost. This they did with such success that, to quote Mr. Andrew Murray, "the results have affected the appearance of all England. Nowhere can a day's ride now be taken where the landscape is not beautified by some of the introductions of the Horticultural Society."

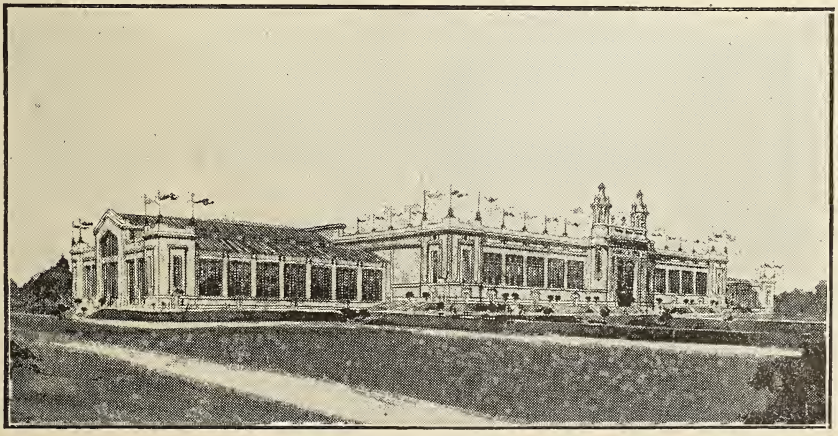


Fig. 2675. Horticultural Building, St. Louis.

THE WONDERS OF THE NIAGARA DISTRICT.

BY T. H. RACE, MITCHELL.

ONE of the most interesting portions of the Niagara district is Pelham township. The great and fertile fruit belt of the Niagara district is that stretch of land from Hamilton to the Niagara River lying between the lake and the mountain. Up over the mountain on the table-land vineyards and peach orchards are the exception rather than the rule. The surface, for the most part, is too hard a clay for small fruits, and general farming—and some very poor farming—is the rule. Pelham township, however, lying right upon the table-land, is an exception to this rule. Pelham township resembles an extensive mound of rich sandy loam, with a centre ridge of water-washed gravel, as if dropped from some stranded iceberg. From the east, west, north and south slopes of this township the most delightful views of the distant lakes and landscapes can be had. The soil, besides being warm and easily worked, is wonderfully fertile, and every variety of timber from oak to walnut was found upon it, and still exists in its unbroken forest lands. Here small fruits grow in great abundance; one man close by Fonthill, Mr. A. Railton, devoting his whole hundred acres to berries of one kind and another, from which he has realized an easy fortune. Among the farmers of this township there are eighty telephones in use, an evidence of advancement not equalled anywhere in the Dominion.

But it is as the great nursery district of Canada that Pelham township has become especially famous. On the east and southern slopes the Morris & Wellington nurseries, the largest in Canada, are situated. These nurseries cover in all about eight hundred acres, and nowhere in the world are young trees brought more rapidly to perfection with a less percentage of culls. This, of course, is owing to the most favorable conditions of soil and climate. Frost-bite and black heart are diseases unknown among trees grown in Pelham township. The rapid growth of the ornamental department of these nursery grounds is indication of the great advancement made in later years in home ornamentation, park and lawn planting. A lesson in this department is also learned of the changing tastes, and greater knowledge, perhaps, of arbor culture. The rowanwood, or mountain ash, so well known in song and story in the days of yore, has no longer a place in the nursery row. The same may be said of the horse chestnut. These have given way to the more popular colored birches, maples, and evergreens. To me the rose department of these nurseries was also of special interest. Morris & Wellington are easily the largest growers of this choice of flowers in Canada, and when I visited their rose grounds, comprising several acres, there were still thousands of roses in bloom, though the season was well on into August.

On the western slopes of Pelham township are situated the Brown Brothers' nurseries, the second largest in Canada. Just on the west of the slope, to the west, stands the handsome nursery home occupied by the manager, Mr. E. Morris. From this home can be seen both lakes, to the north and south, with a commanding view also of the landscape to the west stretching as far as the eye can reach. This matter may not be of actual value to the fruit grower; but it is of interest to all of us to know that we have in our country a district so especially adapted to nursery growing and a matter of pride to them that we have a district of so many natural charms, and so advanced in all the developments of our higher civilization.

FRENCH METHOD OF PACKING AND SHIPPING PEARS

BY

W. A. McKINNON, B. A.

CHIEF OF FRUIT DEPT., OTTAWA.

FIG. 2676. FRUIT PACKING IN FRANCE.

TO those who are accustomed to think of the French as a nation of pleasure seekers it is somewhat of a revelation to mingle for a time among the working classes in the city of Paris and its immediate neighborhood. The discovery is soon made that while Paris is filled with strangers seeking only pleasure, it is in reality a busy hive of ceaseless workers. It was the writer's privilege to become acquainted with the heads of one of the largest fruit houses in France, and to see exemplified the wonderful concentration of business management which enables one firm to place the products of a thousand orchards side by side, in the same market, and packed with absolute uniformity.

At the head office of Champagne Freres orders are received from British and Continental markets for all grades and varieties of pears, plums, dates and other fruits. Daily reports coming in from their agents in all parts of France enable them to give shipping orders in accordance with the supply and demand, so that one mind controls and directs the entire market operations of the firm.

In every section of the country a representative of the firm visits daily five or six packing houses located in his district. Sectional maps, which are kept at the head office, indicate to the management exactly where each of these traveling foremen is to be found at any particular moment, and what sort of fruit is being "operated" in the district in question. The limits of these districts are definitely fixed, and the foreman is not authorized to buy a single package of fruit beyond these limits, which the experience of the firm has enabled them to fix with accuracy, on the basis of profit. It is true there as in Canada that choice fruit may be produced in a certain village, while at another, five miles away, the same varieties are poor and unprofitable and quite other fruits are the staple. The foremen report daily by wire what quantities of fruit of each variety and grade are available for imme-

FIG. 2677. FRENCH FRUIT PACKAGES.

FIG. 2678. READY FOR SHIPMENT.

diate shipment. The manager at the head office, who has the orders before him, and also accurate information as to the resources for the day, is thus placed in a position to direct shipments in accordance with the available supply.

A visit to one of the packing houses in a village a few miles distant from Paris proved exceedingly interesting and entertaining. We were first shown the process of grading and packing the pears as they arrived from the grower in large straw-lined hampers. Women are employed to sort the pears according to size, at the same time rejecting every defective specimen. A few days' practice with measuring rings enables the graders to distinguish accurately the diameter of the fruit to within a quarter of an inch. In practice, the measuring rings are seldom or never used after the first week. The pears when graded are placed on a canvas covered bench, each size by itself. Here a different set of workers is engaged in packing the fruit into slatted crates, as shown in the illustration, Fig. 2676. Each packer handles only one size of fruit, and every crate put up by her must contain the same number of specimens and must be well filled. The operator stands in the angle formed by the bench and the stand on which her crate is placed, and faces the latter. The crate is lined on all four sides with paper, which hangs over the sides and the back, where the lid, with its hinges of cord, hangs straight down. The first operation is to place a layer of excelsior in the bottom of the crate; this is covered with a sheet of newspaper, and the crate is ready for its first layer of fruit, which is placed evenly, with the stems all one way, as shown in Fig. 2677. Over the fruit a sheet of newspaper is placed, followed by a fairly thick mat of excelsior and another newspaper. A second layer of fruit is followed by newspaper and excelsior, after which the overhanging newspapers are folded across the package, which is then handed to a man to be closed.

It requires considerable muscle to draw the cover tightly over the bulging excelsior and fasten it securely.

The next operation is the marking, for which this firm employs a code something like that of telegraphy. For example, three dots indicate "No. 1 Bartlett"; two dots, "No. 2"; three dashes, "No. 1 Duchess," and so on; the color is varied to show the

FIG. 2679. PEASANT FRUIT GROWERS.

section from which the fruit comes. Fig. 2678 shows a cartload of fruit ready to be taken to the station for shipment.

Fruit intended for sale within the week is picked and packed while still green and hard. It is not shipped in cold storage, and has time for ripening during the voyage and before it is finally purchased by the consumer.

The crates cost approximately 30 cents each and are returnable. This package is rather expensive, in view of the fact that a crate is said to stand only five or six journeys to England, and the cost of returning it is considerable.

After seeing the product and the method of handling it, we were anxious to see the producers, and a short walk brought us to the middle of a large pear orchard, where we found a peasant and his wife engaged in cultivating the trees. The illustration, Fig. 2679, shows not only the workers and their costumes, but also the only implement which many growers use for cultivating the soil—the short-handled hoe. Of course it is ue that the larger farmers use horses in their operations, but thousands of acres in France are tilled by hand. Many pear trees are grown in the open as in Canada, but wall culture is very popular in some sections. The pears are trained up against a wall, the top of which is thatched so as to shed he rain. The peasants know exactly how many pears each tree is carrying for them, and watch with careful eye the development of each individual fruit, noting with alarm the progress of scab or rot. Spraying is known, but not thoroughly understood, and seldom efficiently practised by the smaller owners. Thinning is done wherever necessary, the object aimed at being to produce the largest and finest fruit. Champagne Freres, and other firms engaged in similar business, pay a very much higher price for large pears than they will for medium-sized fruit; small

Fig. 2680. House used for Pear Packing.

and defective pears they will not buy at any price, and growers have learned that it pays them well to produce only the article which brings a high price.

At the right of Fig. 2678 will be seen a typical peasant proprietor and client of the firm. Fig. 2680 shows on the left a peasant proprietor in another section of France, and an unoccupied house, on the floor of which he had his pears spread out in layers, the large ones by themselves. The central figure is the representative of Champagne Freres in that district, who had just completed an inspection of the fruit and a bargain for its purchase.

The chief lessons we can learn from a study of methods in the exporting of pears from France are, first, that it pays growers and shippers alike to take pains in the growing of the fruit, so as to produce shipments which contain no undersized or defective fruit; that it pays all concerned to have the fruit rigidly graded, and to place upon the market substantial packages of fruit, uniform in size, appearance and quality; and further, that the careful packing of choice fruit, even though it seem expensive, is really the most economical way in which to handle it.

NEW ONTARIO, FROM A FRUIT GROWERS' POINT OF VIEW.

BY

HAROLD JONES, MAITLAND, ONTARIO.

ON September 21st thirty-eight members of the Canadian Press Association left Toronto on a tour of inspection to that wonderful country lying north of North Bay, known as New Ontario. We arrived at North Bay in the evening after a very interesting trip through the hills and lakes of the Muskoka region. The next morning I went directly north for a distance of 28 miles, on the government railroad now being constructed. Beyond the first two or three miles north of North Bay the road passes through an unbroken forest of spruce, balsam, cedar, pine, birch, maple and a little basswood. On this railway, at Trout Lake, Sturgeon River, and on the south side of Moose Lake, wild plums grow successfully, also pin-cherries, choke cherries, raspberries, blueberries, gooseberries, elderberries, strawberries and high bush cranberries. The land varies greatly from rocky ridges (granite) to sand, gravelly loams and clay loams. The most of this section, as far as soil conditions are concerned, will undoubtedly be adapted to fruit growing when the forest is cleared away. This section of the country is at a high elevation. Sturgeon Lake, about 25 miles north of North Bay, is 1,200 feet above sea level and 600 feet above North Bay. I understand that portions of this forest I have just mentioned are reserved by the government as a timber reserve, and so will not be open to settlement for some time.

On September 22nd I took the train to Mattawa, a point on the Ottawa river east of North Bay. From there I went by rail 39 miles up the banks of the Ottawa to he foot of Lake Temiskaming, from which point I went to New Liskeard, a distance of 85 miles, on one of the Lumsden Company's steamers. The banks of the Ottawa and of Lake Temiskaming are abrupt cliffs, mostly of a rocky formation, covered with soft maple, silver birch, poplar, balsam, spruce and pine, with some burr oak. These cliffs are rich in scenic grandeur, but very little, if any, fit for cultivation.

At Haileybury, 6 miles south of New Liskeard, the rocky formation abruptly stops, and we enter into the great clay belt of the north, which is said to be 600 miles long, of about 200 miles wide and of unknown depth.

I stopped over night at New Liskeard, a thriving little town of 1,000 or 1,200 inhabitants, who have great expectations. The next morning, September 24th, I drove out on the East road, along the north end of the lake, for a distance of six miles. I found the land here all clay, with the exception of two limestone ridges.

My first stop was at S. S. Ritchie's, five miles east of New Liskeard, whose land is on the banks of the lake. This farm is a rather high elevation above the lake, and upon examining the soil in a cellar that had been dug for a dwelling, I found it sandy for a few inches, with a clay to gravelly subsoil, which would give good natural drainage. At this place I found a Hyslop crab, and what was evidently a Duchess about four years old, in a healthy thriving condition. The natural forest on this farm is deep rooted, and there was no evidence of root-killing, even in varieties of apples that he had planted that were not hardy in wood and branch in that northern country.

I also visited C. W. Tucker, adjoining Ritchie, with soil conditions similar to those just mentioned. Here I found a Hyslop

crab, a good sized apple of Russian origin, bearing fruit, and Concord and Niagara grapes. Concords were ripe, Niagara green. I also found two native plums of excellent quality, in full bearing.

I returned to New Liskeard for dinner, and after dinner drove towards White river and Tomstown, on what is known as the north road, a distance of 10 or 11 miles. I found here a gently undulating country, all clay, with a thick forest growth of medium sized spruce, balsam and cedar. All along this road the country is thickly settled and some quite large clearings made. Oats, barley and all kinds of vegetables do remarkably well, potatoes especially so. I did not find anyone on this road who had tried raising fruit of any kind, and I saw very little wild fruit. The forest here is shallow-rooted, but as the land becomes cleared and cultivation and drainage aerates the subsoil, fruit trees might possibly make a root system. On the road west from New Liskeard I found soil conditions the same, except the elevation is higher, and drainage can be easily done, as the ravines afford an easy outlet.

Weather conditions seem favorable for the growing of all kinds of crops, and there is no evidence of severe frosts up to this date, corn being still green in most sections. In the winter months the thermometer falls as low as 40 degrees below zero, with the usual snow fall of about 2½ feet. This country is evidently north of the belt of heavy snowfalls such as they have along the north shore of lakes Superior and Huron.

The Township of Dymond held their fall fair at New Liskeard on September 25th, and it was a complete surprise to see the wonderful exhibit in grains and vegetables. There were over 1,100 people on the grounds in the afternoon, and everybody looked contented and happy and pleased with their conditions.

One great advantage to a settler in this country, who has limited means, is that he has an immediate revenue from the forest that is on his homestead, and he can make his winters profitable by cutting and selling wood and timber that it would be necessary to cut anyway in clearing his land.

The new railway, above mentioned, will reach New Liskeard next summer. This will bring in settlers by hundreds and thousands, for this country is 175 miles south of the latitude of Winnipeg, the climate much more temperate, and the winters not so long as in Manitoba. And New Liskeard will be only 15 or 16 hours by rail from Toronto.

RASPBERRY AND BLACKBERRY MANAGEMENT.

THE ideal treatment for raspberries and blackberries is to pinch them back at intervals during the summer and thus secure strong, sturdy bushes three and one-half to four feet high, with laterals one to one and one-half feet long, rather than to practice severe heading back after the plants have become long and "leggy." If, however, as is frequently the case, even in the best managed gardens, the plants are at this season making vigorous growth which may not mature, they should at once be cut back to the desired height and the canes will harden before cold weather. Many prefer to cut back the canes in the spring. Thinning the canes, which should always be practiced, may be done at any time during the season. In general one-half or more of the young canes which appear should be cut out.

Blackberries and raspberry bushes may be transplanted in the fall, but better results are usually obtained from spring planting. Currants, on the other hand, have given rather better results from fall setting.—*Maine Experiment Station.*

WILLIAM E. SAUNDERS

SECRETARY OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO.

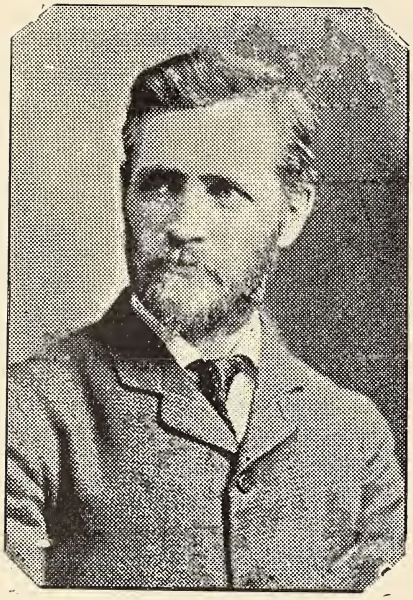


FIG. 2681. WILLIAM E. SAUNDERS.

PROMINENT among Canadian naturalists is Mr. W. E. Saunders, of London, Ont., who has been secretary of the Ontario Entomological Society since the year 1887.

His father, Dr. Wm. Saunders, director of the experimental farms of the Dominion, has always been devoted to the study of the natural sciences, and hence the son's attention was in early years directed to similar pursuits, his interest in them being maintained by the making of collections in the different departments. Geology, botany, entomology and ornithology all in turn provide object lessons for study, training his mind to habits of close observation and filling the leisure of later years with delightful employment.

After a few years of miscellaneous collecting Mr. Saunders turned his attention more exclusively to ornithology, and as soon as the use of a gun was permitted he commenced a scientifically arranged collection of our native birds, showing male and female in summer and winter plumage, with any variations from the types; also the nests and eggs of each species. Year by year the collection is added to, until now it numbers over 1,000 specimens. Mr. Saunders' birds are his intimate friends, and whether in his house or on the public platform his "Bird Talks," illustrated with specimens, show to his audience that he speaks of what he has learned by personal experience in the fields and woods. His enthusiasm for this study is such that he counts it no hardship to walk miles into the country in time to hear some favorite songster greet the dawn. He has also been known to spend a night in the woods in the depths of winter, just to see what he missed by spending his nights in bed.

About two years ago Mr. Saunders accompanied his father on an official visit to Sable Island, a place he had long wished to go in order to see the only known breeding place of the "Ipswich" sparrow. The impressions of this trip were given to the public in an article in one of our local papers, which has since been adapted for some of our scientific magazines. Mr. Saunders was able also to enrich his collection by several specimens of the rare sparrow, as well as some other beautiful birds which have their habitat on that interesting island.

Although Mr. Saunders is kept fully employed in looking after his business interests, he finds a change of work sufficient to afford him the rest he needs; hence, he has

employed his leisure time in many pursuits, and while ornithology may be called his principal "hobby," he has gone rather extensively into gardening and horticulture generally—extensively, considering the size of his lot on Central avenue, but the amount of fruit and flowers there produced is a surprise and pleasure to all his summer visitors. His well-known love for these pursuits and his knowledge of horticulture generally has occasioned his recent election to the chairmanship of the committee who have in charge the care of the street trees in London.

Mr. Saunders received his education principally in London, though two or three years were spent in boys' colleges elsewhere. As it was considered best for him to enter the drug business so long conducted by his father, he was sent for two years to the Philadelphia College of Pharmacy, where he graduated with the highest honors. Soon after his return to London he was taken into partnership with his father, but on the latter being appointed Director of the Experimental Farms of the Dominion, Mr. Saunders retired from the retail business and entered into the wholesale exclusively.

On the establishment of the Western University he was appointed to the chair of Chemistry, which he held until the claims of his own business forced him to relinquish the position.—*Canadian Entomologist.*

USEFULNESS OF SPARROWS

JUDD (U. S. Biol. Survey) in Bul. 15 reports upon results of observations upon the feeding habits of the various sparrows found in the United States, as studied both in field work and by examination of stomach contents. The result was unfavorable to the English sparrow, because of his grain-eating habits, which more than counterbalance all his usefulness in eating insects or weed seeds. In the stomachs of 82 English sparrows, for example, insects constituted only 2 per cent. and seeds 98 per cent. of the food; while of the entire food for he year it was found that grain constituted 74 per cent.!

But, aside from this foreigner, our sparrows are most useful in destroying weed seeds, such as rag weed, pigeon grass, smartweed, crab grass, lamb's quarter, chickweed, etc. The work is chiefly done in the fall, winter, and early spring; indeed, during this time the seeds of various weeds constitute about three-fourths of their food, if we may judge by the observations made upon no less than twenty specimens of native sparrows. The ragweed is one of the most troublesome weeds on the fruit farm, growing up so late in the season and giving the whole place such an untidy appearance, so that a bird that feeds upon its seeds is surely a friend. From Mr. Judd's observations it is shown that the native sparrows may destroy 90 per cent. of the seeds of the ragweed within two months, and he found that as a rule the weed seeds were cracked, or otherwise injured, so that they cannot germinate when vented from the body.

FIG. 2682. HOME OF M. AUG. DUPUIS, VILLAGE DES AULNAIS, QUE. Photo by F. T. Shutt.

A DRIVE THROUGH THE FRUIT BELT OF THE LOWER ST. LAWRENCE.

BY

W. T. MACOUN,

HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

THERE is a district in the Province of Quebec where good fruit is grown which has not often been brought prominently before the readers of the Horticulturist; this may be due partly to the fact that the fruit growers there are more modest than in some other parts of Canada, and partly because they are for the most part French Canadians who do not receive the Horticulturist. The writer refers to that tract of country along the south shore of the St Lawrence river extending from Levis, opposite Quebec, through the counties of Levis, Bellechasse, L'Islet, Beauce and Kamouraska, a distance of about one hundred miles, and reaching about latitude 47 degrees 50 minutes.

Although the winters in this part of Canada are very severe, the temperature occasionally falling to 30 degrees below zero, the St. Lawrence river has such a favorable influence that European plums and cherries and other fruits which will not succeed at Ottawa are grown here to perfection, the

flower buds of the plums and cherries coming through nearly every winter uninjured.

Accompanied by Mr. F. T. Shutt, the writer recently had the pleasure of visiting this district and of learning from personal observation what is being done in fruit culture there, and what are the possibilities for the future. Landing at St. Denis wharf from Murray Bay, we drove to St. Denis, a distance of four or five miles, and called on Mr. J. C. Chapais, assistant dairy commissioner, who has done much experimental work in fruit culture. Mr. Chapais eceived us with great courtesy and afterwards showed us over his orchard and garden, in which were found many things of interest. There was a good crop of apples in the orchard, but we were surprised to find how much later the season was than at Ottawa, a month, as we were informed. Duchess and Fameuse were among the more prominent kinds of apples noticed. The plum crop, which is usually very good, was light with Mr. Chapais this year. Fine strawberries are grown here, and as the season is so much later than at Montreal and Quebec it should be profitable to ship this fruit to those markets. There was a fine vegetable garden kept in good order. Mr. Chapais has also a very interesting collection of ornamental trees and shrubs. We were surprised to find the horse chestnut doing better here than at Ottawa. Mr. Chapais has one of the finest horticultural libraries in Canada, some of his books being valuable French works. There is apparently not very much good fruit land in the immediate vicinity of St. Denis, which is on a point of land with low ground on either side. A drive of twelve miles brought us to Ste. Anne de la Pocatiere, where, although comparatively little is done in raising fruit, it is quite evident good apples and plums can be raised. After a drive of about nine miles we arrived at Village des Aulnaies, a point to which we had looked forward with great interest as being the home of that veteran fruit grower, nurseryman, and experimenter, August Dupuis, director of the fruit experiment stations for the Province of Quebec. We were fortunate in finding Mr. Dupuis at home. He received us with great kindness and entertained us well. One would almost fancy himself in France here, as the general character of the village, houses and gardens partakes of that country.

Mr. Dupuis, who has been actively engaged in horticultural work for nearly fifty years, and who has conducted a nursery of fruit trees and ornamental trees and shrubs for about forty years, is very enthusiastic regarding fruit growing along the south shore of the St. Lawrence, particularly regarding the cultivation of the European plum, to which fruit he has paid special attention and has tested a large number of varieties. In 1902 his trees were heavily loaded with fruit, and although last winter was unusually severe (the temperature falling to 30 degrees Fahr. below zero), and spring frosts and summer cracking did much damage, there was a good showing of some varieties. Varieties which are quite unprofitable at Ottawa and only yield a good crop of fruit once in three or four years, succeed admirably here almost every year, and varieties which are regarded as comparatively tender in the best plum districts do well. Two kinds which are giving the best results this year, and which are among the most profitable are Washington and Grand Duke. I saw and tested ripe fruit of these and many other kinds in 1902, grown by Mr. Dupuis. The varieties found to be most profitable and hardiest in fruit bud are: Lombard, Moore's Arctic, Reine Claude, Montmorency, Green Gage, Washington, Grand Duke, and several varieties of damsons. On November 1st, 1902, Mr. Dupuis shipped 50 gallons of his Lombard and Grand Duke plums to England, where they arrived in perfect condition. Some of his Grand Duke

Photo by F .T. Shutt.

FIG. 2683. VISTA IN BOTANIC GARDEN, WITH VIBURNUM HEDGE IN FOREGROUND. GROUNDS OF AUG. DUPUIS, VILLAGE DES AULNAIS, QUE.

The photo shows an avenue in grounds of Mr. Dupuis, the veteran fruit grower and pioneer in horticulture, being seated on the bench or garden seat in the foreground. Among the other figures are Mr. A. Verreault (in front of the streamer "Horticulture"), superintendent of the grounds, and Mr. W. T. Macoun (next to Mr. Verreault), the writer of this article. The streamers and flags were displayed by Mr. Dupuis in honor of the visit of the officers of the Experimental Farm.

and Golden Drop, which had been kept in a cool and dry building, were packed on November 10th, and on December 1st they were still in good condition and sold well. The plum season begins with Favorite and Mirabelle in the first half of August and ends with Golden Drop and Grand Duke about December 1st.

Mr. Dupuis is now experimenting with a large number of varieties of pears, forty-six of which he imported from France, most of them being on dwarf stocks. A large proportion of these were fruiting this year, and some of them give promise of being especially adapted to the district along the south shore. Among the most promising were Claude Blanchet and Toukouba, which, although not of the best quality, were of good size and appearance.

Morello cherries are also successfully grown here, and good crops of these are produced nearly every year.

There is a good sized apple orchard here with trees twenty-five or thirty years old, and perhaps more. The hardiest varieties succeed best, but we were surprised to find a Northern Spy tree in fairly vigorous condition which was planted more than twenty years ago. Among the varieties which are most reliable here may be mentioned Tetof-

sky, Yellow Transparent, Red Astrachan, Duchess of Oldenburg, Wealthy, Fameuse and Alexander.

We saw here some of the largest English gooseberries which have ever come under our notice.

Among the ornamental trees and shrubs, of which there are many species, there were some great surprises. As at St. Denis, horse chestnuts were doing well. Cut-leaved birch, planted in 1874, were still fine, healthy trees, probably forty or fifty feet in height. There was an American sweet chestnut tree, planted in 1874, which was in fine condition, and about twenty-five feet high. There were many black locust trees eighteen years old. The smoke tree (Rhus Cotinus) was doing well, and the Althæa or Rose of Sharon, which kills out root and branch at Ottawa, was found blooming at Village des Aulnaies.

Very intense cultivation is practiced by Mr. Dupuis, and his fruit and ornamental trees are planted close, which gives them greater protection. Some idea of his methods may be obtained from the photo of part of his nursery, taken by Mr. F. T. Shutt, chemist of the Dominion Experimental Farms, and the photo of his house taken at the same time shows the pleasing effect of the trees, shrubs and vines. Mr. Dupuis has also a fine horticultural library containing many rare works.

From a little below Village des Aulnaies, and up the river about 40 miles to Montmagny, which is as far east as we went, there is within a mile or more of the St. Lawrence river many suitable locations for orchards. The soil, which is warm sandy loam, gravelly, or mixed with shale, has good natural drainage, and appears well adapted to fruit growing; yet in all this dis-

FIG. 2684. VIEW IN NURSERY OF AUG. DUPUIS, VILLAGE DES ALNAIS, QUE. Photo by F. T. Shutt

tance, with the exception of the orchards of Mr. Chapais, Mr. Dupuis, and a few others, such as that of Mr. Verreault at St. Jean, Port Joli, which we did not visit, there was nothing that could be called an orchard, although many farmers had a few trees. Plum and cherry trees are dying or dead from black knot, and apple trees are none too thrifty, whereas in the two orchards mentioned, and no doubt in others which we did not see, black knot is practically a stranger and the trees making thrifty growth, showing what can be done in this district if there is a will to do it.

A PRINCE EDWARD ISLAND FRUIT SHOW.

THE exhibition of fruit this year at the Provincial show, Charlottetown, Prince Edward Island, was by no means the grand feature of previous years. The reason for this is found in the fact that last year was a full year here, his even more than an off year, for besides being off as to the bearing qualities of the trees, the season has been so backward as to leave the small proportion of fruit on them strikingly ungrown and immature. In the early apple class Yellow Transparent showed up splendidly, because other years it had gone out of season in late September. But Duchess of Oldenburg was not nearly so large nor well represented as one would have thought, only 34 entries being made. Alexander and its offspring, Wolf River, were a good exhibit as to number, but even this fruit was not fully grown and but poorly colored. The lists comprehended Alexander (Emperor), Baldwin, Banks, Baxter, Belle Fleur, Ben Davis, Bethel, Blenheim Pippin, Sutton's Beauty, Chenango Strawberry, Rome Beauty, Duchess, Hubbardston Fameuse, Inkerman, Golden Russet, Gravenstein, King, McIntosh Red, Mann, Nonpareil, R. I. Greening, Red Beigheimer, Rid Russet, Ribston Pippin, Stark, St. Lawrence, Wagener, Wealthy, Winter Bough, Wolf River, Yellow Transparent, with all the crabs and a number of plums, pears and grapes. Ontario, Nonsuch and Rome Beauty failed to fill. Inkerman, one of my own origin, was only represented by one plate, and in several other sections there was but a small exhibit. It is peculiar to me how you secure a half decent show of fruit at your exhibitions in Ontario, held so early in the season. For our part, we believe that we shall have to come to the winter show of fruit for anything liike practical results.

From present appearances it doesn't look as if we could grow good Nonpareils here. We can get good Spys, fair Baldwins, Russets, Manns, good Kings, Gravensteins, Ribstons, Starks, Ben Davis, Wealthys, etc. The autumn apples do well—our Alexanders and Wolf Rivers beat the world. Those we

FIG. 2685. PRIZE CLAPP'S FAVORITE.

can grow well we ought to plant extensively, and thus be correct economically, anyhow. Next year there will, if things go right, be a big crop. All that we could export this year would not load a small ship.

The pear show was not too bad for the year. Clapp's Favorite made a splendid section. We can grow this pear grandly and ought to do so extensively. E. Bayfield showed some splendid specimens and carried off the red easily. The portrait of the young tree in full bearing, from which the prize pears were taken, is given herewith. It will be seen from it that we can get a crop of pears in an off year at least.

In the barreled fruit Senator Ferguson and John Robertson, Inkerman carried off the honors. In the collections there was some superior merit in infinite variety. The Silken Banner Sweepstake remains with

Yours truly,

A. E. BURKE.

SCHOOL YARD IMPROVEMENTS.

FLAG RAISING CEREMONY.

MR. G. R. PATTULLO, the honorary field secretary of the Canadian League, has sent out a circular in which he aims to promote a greater interest in the school properties. The following is an extract from it:

The chief objects of the League, in brief, are: To promote a higher civic spirit and a wider interest in the improvement and beautifying of our cities, towns, villages and rural districts.

The directions in which these objects may be promoted are many and varied, but I shall in this letter mention only one, namely: The improvement and beautifying of rural school properties, including the schoolhouses, outbuildings, and surrounding grounds. These at present are, for the most part, unattractive, bare, and in many cases, offensive in appearance.

With the hope of improving them, the Canadian League of Civic Improvement is endeavoring to stimulate a more general interest in their school properties on the part of the Boards of Trustees and the people of the several school sections.

To aid in doing this, it has been suggested that if the parliamentary representative of each constituency were to offer as a prize a Canadian flag (British) to the rural school section that makes the greatest improvements upon its school property during the year 1903, there might be developed a keen but friendly rivalry between the different sections, and thereby great improvements effected, such as planting Boston ivy or other vines about the school buildings, the planting of trees about the grounds, and the making of one or two flower beds.

Apart from this, another good object could be accomplished, namely: The furnishing of school sections with the national flag, which each one of them should have and should fly on all appropriate occasions. The trustees would, of course, supply the flag poles and equipment, and the formal ceremony of flag raising might be an interesting and patriotic event.

POWER SPRAYING

BY

W. A. McKINNON, B. A.

CHIEF FRUIT DIVISION, OTTAWA.

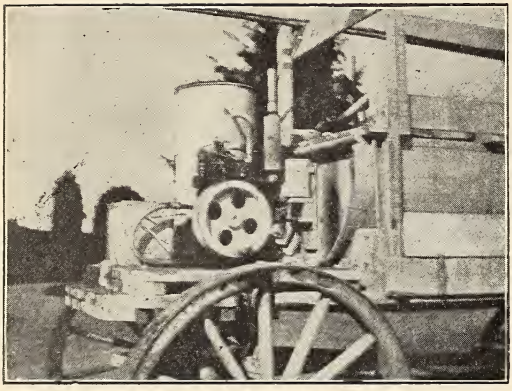


FIG. 2686. GASOLINE POWER SPRAYER USED AT INGERSOLL.

WHOEVER has watched the trend of events in the fruit growing sections of the United States must be struck with the advent of power spraying as one of the routine operations on the farm. The many difficulties which attend spraying by hand are so well known to the readers of the Horticulturist that hey need not be enumerated. It is also well known that the great bulk of Canada's export fruit comes from small orchards where the difficulties referred to are greatest, and where the inducement to the owner to overcome them is least. With these facts in mind the Minister of Agriculture last spring authorized the carrying out of some experiments by the Fruit Division with a view to demonstrating the advantages of power spraying over the old method. These experiments were highly successful from the operators' point of view. It was found possible to cover twice the acreage in a day that could have been attended to with hand pumps. In some cases the difference was even more marked. These experiments, which were carried on in the neighborhood of Woodstock, and on the Island of Montreal, proved extremely successful in eliminating fungous diseases. Facts and figures

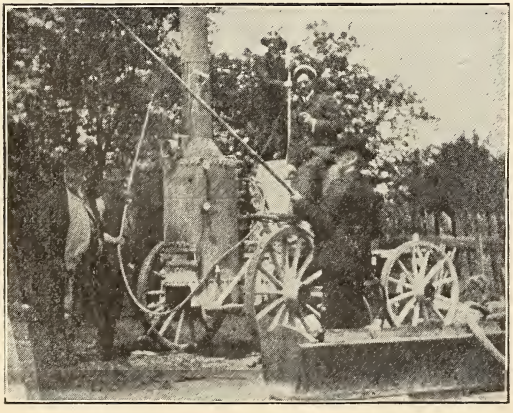


FIG. 2687. STEAM POWER SPRAYER USED AT McKINNON'S, GRIMSBY.

FIG. 2688. POWER SPRAYER USED ON FARM OF J. C. HARRIS, INGERSOLL, ONT.

regarding the cost of the operations and the result as shown in the fruit when harvested will be furnished to the public later on when full details are at hand.

The power used in the Government e-monstrations was gasoline. Other forms of power have been adopted by some of the large growers of the Niagara district. Jos. Tweddle, of Fruitland, used compressed air for spraying his orchards, and with considerable success; Vance Cline, of Grimsby, employed gasoline; while on the farm of D. J. MacKinnon & Sons steam was the power employed. The accompanying illustrations show the steam outfit and the gasoline outfit at work.

It is strongly recommended that growers should give this matter serious consideration now, so as to be ready for operations next spring. Owners of three thousand or more trees would do well to procure a power outfit for their operations, while those whose orchards are smaller can in almost every instance combine together to secure and operate an outfit of this sort, which would effect a considerable saving of expense and secure much more effective work.

THE NORTHERN SPY.

WITHOUT doubt the Spy stands unequalled as a winter apple. Its long keeping qualities, and crisp, spicy, high flavored flesh, make it a universal favorite with consumers, either for dessert or cooking. When cooked in pies or sauce, it possesses that rich, spicy flavor that one always appreciates in a first-class cooker, and after mid-winter there is scarcely anything to equal it for dessert. It is also a splendid canner, and this is another use that many housekeepers make of this splendid apple. When the canned fruit is getting scarce toward spring, the empty cans can be filled with Spys, and when properly done there is scarcely anything that equals them as a canned fruit. This apple is always in demand in the large cities of the United States, and it has often been sold at fancy prices for dessert, when the samples were very choice, of uniform size, clean and well colored. Although of American origin, it reaches greatest perfection in the Province of Ontario, and especially in the Georgian Bay district, although it has a wide range of adaptability. It is about the latest variety to mature; in the Georgian Bay district it does not get fully colored until near the end of October. It has the merit of clinging well to the tree, and is very little affected by wind storms. When the ground is strewn with other varieties, during the autumn gales, there are very few windfalls among the Spys.

But the tree is not without faults, and the most prominent one is the long time it takes to come into bearing, and then its liability to split in the crotches and fall apart. But these faults can be remedied by top-grafting it on some good hardy stock, and this is certainly the best way to grow the Spy. It will then come into bearing much earlier; the liability to splitting is avoided, and you will have a long-lived tree. That growers are catching on to this idea is evidenced by the large demand for Talman Sweets, to be used as stocks for top-grafting on, it being one of the best for this purpose.—*Farmers' Advocate.*

STORING SUMMER FLOWERING BULBS AND TUBERS DURING WINTER.

BY

WM. HUNT,

O. A. C., GUELPH.

TUBEROUS ROOTED BEGONIAS. As soon as the foliage has died down no more water should be given them. The tubers can be shaken out of the soil and packed in dry sand in shallow boxes and placed in a room or dry cellar or basement, where the temperature is from 40 to 50 degrees. Or the tubers can be left in the soil, if they have been grown in pots, leaving the tubers undisturbed in the soil until spring. The pot should be placed away in a dry cool place and no water be given them until March or April. Before growth commences in spring the tubers should be shaken out from the soil and started into growth in sand or sandy soil in small pots. I have had the most satisfactory results from tubers that have remained undisturbed in the pots than from those taken from the soil and packed in sand or any similar material for the winter. Whatever method is adopted, great care must be taken not to place them where water or moisture can reach them during winter.

ACHIMENES AND GLOXINIAS.—Very few of the first mentioned of these are grown in windows, but their oddly shaped flowers and peculiar habit of growth make them doubly acceptable to those who love odd and pretty flowers that are not common. The same treatment as recommended for tuberous begonias can be given both achimenes and gloxinias during winter, with the exception that they should be stored in rather a warmer place than the begonias. A temperature of about 50 degrees will suit them very well. The soil or material the roots or tubers are in should be kept quite dry, but not too near the stove or furnace, as an intensely dry position would weaken if not destroy altogether perhaps the vitality of the tubers.

CALADIUMS.—As soon as the foliage of fancy caladiums show signs of decay less

water should be given them until the foliage has completely died down, when the leaves and stems should be cut off and the pots laid on their sides in a warm moist situation, where the atmosphere is damp. A warm corner under the greenhouse bench will suit them. Place the pots so that no water can drip on them from the plants on the bench above, and no water should be given them, as the most atmosphere will supply all they need in this respect. A very dry position does not suit fancy caladium bulbs when dormant, as they often suffer from dry rot if kept in a very hot dry place.

Bulbs of the caladium esculentum, or as it is commonly called the "elephant ear" plant, that succeeds so well in the open garden in summer time in light moist soils, is not so particular as to its winter quarters as its more fancy relative I have just mentioned. The bulbs of this variety should be dried fairly well when they are taken from the ground and then packed in dry sand in a box and the box placed in a fairly dry warm room or cellar where the temperature is never below 45 degrees, and not above 70 or 75 degrees during winter. No water should be given them until they are started into growth in pots in April or early in May.

CANNAS.—These most useful decorative plants are natives of tropical climates, so that even in winter the roots of these must not be exposed to a low temperature. Very few cellars except those that are artificially heated by a furnace are suitable for storing canna roots in. A temperature of 50 to 60 degrees suits them very well during winter. By leaving a fair amount of earth around the clump of roots when they are taken from the ground and allowing the soil to dry somewhat before storing them, canna roots can be kept successfully in almost any dwelling house, provided they are kept in a warm temperature as before mentioned and not allowed to become either too dry or too wet during winter. If the room or cellar they are stored in is very hot and dry the roots should be covered with dry earth or sand entirely, but if the position is only fairly moist the soil adhering to the roots will be sufficient to keep the fleshy tubers or roots from drying out too severely. Nothing approaching a freezing temperature agrees with cannas even when dormant, so that care should be taken to keep them at least in a temperature above 45 degrees. I have known very heavy losses to occur in the storing of canna roots during winter from their having been kept in a continuously low temperature during winter, although the temperature had never reached actually to freezing point. The fleshy rhizome like roots looked quite fresh when taken out to start them in spring, but the growth germs of the tubers had lost their vitality, a very large percentage not growing at all, and many of those that did, made only weakly sickly growth until well on in the summer.

DAHLIAS.—There is nothing better for storing dahlia roots in during winter than sand or sandy soil. Dahlia roots can be kept in a lower temperature than cannas. A fairly moist cellar (not wet) and a temperature of about 40 to 45 degrees will suit dahlia roots very well. Care must be taken not to put dahlia roots too near the furnace, as an excessively dry moisture will often prove fatal to them. The plan of drying the roots and stringing them up to the joists in the cellar as is often—in fact frequently—practised in England is not as a rule a success here, where the atmosphere is drier and where more artificial heat is used than in the old land in heating dwelling houses. In very damp cellars or basements, however, dahlia roots might possibly winter through by being hung to the joists or rafters, but dry earth or sand is about as good material to keep them in as can be found. An occasional dip of low temperature, short of actual freezing, will not hurt dahlia roots, but a temperature of about 40 degrees suits them

best. Dahlia roots will winter very well where beet roots or mangold wurzel will winter in good condition.

Gladioli.—The bulbs or corms of these beautiful showy flowers that have become such popular favorites with all flower lovers, are perhaps the easiest of all the summer flowering bulbs to winter through, if only ordinary care be given them. The roots of these should be dug up before severe frosts, or as soon as the tops have become browned slightly from frost. The tops should not be cut off when the roots are dug up, but should be left on just as they are dug until after the corms or roots have been dried fairly well, when they can be cut off about four or five inches above the bulb or corm. A dry cool room or shed is a good place to dry off gladioli roots in. They should be spread out thinly, tops and all, on the board floor or on benches or in shallow boxes for two or three weeks, when the tops can be cut off as before mentioned and the corms or bulbs can be put into shallow boxes and placed in a fairly dry room in a temperature of about 40 or 50 degrees, where they can be left until spring. If the room where they are kept is very hot and dry the corms should be covered with dry sand, or dry sawdust or charcoal, as an excessively dry temperature will weaken the vitality of the corm and sometimes prevent it from starting into growth again at all. A very damp position must also be avoided, as this will induce mildew and possibly rot. I have frequently wintered gladioli roots very successfully by tying them together by the tops and hanging them to the joists in a fairly warm moist cellar but have had the best success with them by packing them in shallow boxes in dry sand and placing them in a fairly dry warm room or basement. An upstairs room or attic in a house where a furnace or steam boiler is used for heating purposes is often too dry to keep gladioli roots successfully, but in a house or room that is not over heated they can usually be kept without any very great care or attention.

In conclusion I would say that in wintering over any of these roots or bulbs I have mentioned, care should be taken to avoid extremes, whether of heat or cold, dryness or moisture. Try and give them as nearly as possible the natural conditions they receive when dormant in their native haunts, and avoid intensifying these conditions too severely, as is often done at the risk of losing partially, or altogether perhaps, a valuable collection of summer flowering roots.

FLOWER AND PLANT LORE

BY EDWARD TYRRELL, TORONTO.

CYCLAMEN PERSICUM, white, with a bright claret purple blotch at base, is the finest of the species and the parent of all other varieties cultivated in pots. It is a native of Greece, Palestine, and other parts of Syria, and was introduced into England in the middle of the eighteenth century. I read with pleasure the notes on the cyclamen by Mr. Wm. Bacon, of Orillia, encouraging those who have not already done so to try and grow these beautiful flowers, for as he says, "they respond with such a generous profusion of bloom to modrate care and cultivation."

I had just been reading Dr. Hugh MacMillan's book on the "Poetry of Plants" (although there is not any of what is generally known as poetry in it), and his description of the cyclamen as he saw it growing in its native country is so beautiful that I

thought your readers would appreciate some extracts. They are rather longer than usual, but will repay for reading if you can spare the time. Dr. MacMillan says: "The cyclamen is the earliest of the flowers of Palestine. It is in the Sacred Land what the snowdrop is in our own country. Its pale petals, tinged with a hectic red, which are turned back in a way different from other flowers, remind one of an eager runner with his hair streaming behind in the wind, and his face flushed with the exertion he has been making, who has just reached the goal and won the prize. First in the floral race of the year, the cyclamen is crowned with a special beauty. It does not seem at all a wild flower akin to those weeds that are trodden hopelessly under foot, or cast out of field or vineyard. It is carefully nurtured by nature under the blue sky of God's own land as in a conservatory."

"The cyclamen brings back in imagination the days when heaven came down to earth and breathed its fragrance over these holy fields. It looks like a prophet flower with its ears bent back to hear the mystic voices of the past, and especially the voice of Him who spake as never man spake, and said, "Consider the lilies how they grow." Year after year the cyclamen grows in the clefts of the rocks and on the slopes of the hills. Its cluster of round leaves, with mysterious markings upon them like some unknown cypher writing, cling to the barest spots, clothing their nakedness, and making the wilderness and the solitary places to be glad.

"Shall I ever forget the mystic afternoon when I first gathered the cyclamen in Palestine? It was in a field beside the road that winds round the base of the hill on top of which is built the village of Latrun, the traditional birthplace of the Penitent Thief. We encamped on this spot all night as our first resting place between Jaffa and Jerusalem. The green field on which our tents were pitched was well watered by a little brook whose musical murmur was distinctly heard in the universal stillness. It was covered with myriads of scarlet anemones and white cyclamens which almost hid the bush grass and made most gorgeous patterns like those of an Indian robe. And when the moon stood still over the wonderful scene, as it did in the days of Joshua over the vailey of Ajalon, near at hand the anemones lost their scarlet hue, and darkened down with the grass among which they grew into a mass of shadows, while the blossoms of the cyclamen gleamed with a ghostly white radiance in the sympathetic light. The dinner table that night was resplendent with a bouquet such as never again adorned it in our camping experience, and a link of association with this lovely flower was formed in my mind which always vividly recalls the haunted scene and makes it "a joy forever."

"After this I frequently saw the cyclamen in the Holy Land, but the place where it struck me most was on that "green hill far away without a city wall," the mound outside the Damascus gate of Jerusalem, which is supposed to be the true site of Calvary, and as I gazed on the vivid red circle that stained its snowy petals I thought not of the Virgin Mary to whom the flower used to be dedicated, nor of the "Bleeding Nun" which the flower used to be called, but solely of the sacred blood of the crucified Redeemer shed on that spot. I saw it flourishing in great abundance in different spots along the saddest path ever trodden by man, by which Jesus ascended from Galilee to Jerusalem, and I felt sure in my own mind that he greeted none with a more tender smile than this delicately formed blossom.

"The cross and the sepulchre have vanished, but the garden remains; the shadow of the cross rests upon these cyclamens, and the hope of the resurrection rises up anew with them out of their winter grave, consecrating them as God's heralds, that speaks to us of a world won by the great victory of

the cross and the sepulchre where there shall be no more death and where the sunlight is eternal.

"The religiou of Jesus has exorcised the baneful superstition which gathered round this lovely flower, and made it an object of dread as capable of causing personal injury to maid or matron who happened to step over it, so much so, indeed, that Gerarde, in his famous Herbal, tells us when he had cyclamens growing in his garden he stuck a fence of sticks around them and laid others crosswise over them lest any woman should touch them and be hurt."

Shirley Hibberd says it is quite a common event to see cyclamen persicum with fifty to one hundred flowers, and we once saw a plant that must have had at least five hundred blossoms. It was presented at a meeting of the floral committee of the Royal Horticultural Society by Mr. Wiggins, on the 12th of February, 1884. The plant was at least seven years old, with a corm nearly as large as a baby's head.

MIGNONETTTE MACHET, WHITE PEARL, THE WHITE MACHET.

BY this demonstration the well known firm, Pape & Bergmann, Quedlinburg, Germany, sets forth a very remarkable novelty, which forms indeed a magnificent counterpiece to those varieties, Rubin and Goliath (the red machet), introduced by the same growers several years ago.

The exhibit of this novelty is that peculiar to the machet class, viz., vigorous and compact also very ramifying and of rich bloom. The blossom stems, erect and firm, bear long very thick and nicely obtused blossom panicles, towering elegantly above the quite dark green slightly undulated foliage, such as ought to be the case with a genuine machet. With a mignonette the color of the blossoms is of a remarkably pure white, among which now and then appear single red anthers, rendering more striking and showy still this novelty, these two colors together forming a very good and pleasant contrast with each other.

Mignonette machet (White Pearl) is as appropriate for pot flower as for growth in open ground, affords remarkable enrichment to the material for bouquets, flower glasses, etc., a white machet certainly forming a beautiful and striking alteration among the other varieties known, so this novelty will obtain a lasting and prominent situation in the flower line. Combined with Machet Rubin, be it in beds or in bouquets, it will afford an excellent effect, these two varieties being so well adapted the one for the other. Not yet quite constant.

FIG 2689. MIGNONETTE MACHET.

The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

CORRECTIONS.

THE ORILLIA FRUIT EXHIBIT.—A correction. On page 422 Mr. Race frankly admits the "superiority of the Spy, Baldwin and Greening." This should read the *inferiority* of those varieties; at the end of the paragraph on the second column, instead of "as far as possible *education*," read *educative*; and at the bottom of the page, instead of "the tree is said to be a good *grader*," read a good *grower*.

BRUCE COUNTY.—On page 402 of October number, instead of A Visit to Grey County, read A Visit to Bruce County.

APPLES IN EUROPE.

THE Fruit Division, Ottawa, has several times called attention to the scarcity of fruit in Europe this season, and the consequent good prices which were likely to rule there for first-class Canadian fruit. In reporting on a cargo of 165 barrels of Canadian apples recently landed at Bristol in such a condition that the juice was leaking through the bottom of the cars before leaving the dock, Mr. H. J. Goff, Inspector of the Department of Agriculture at that port, confirms the opinion frequently expressed by Chief McKinnon, of the Fruit Division. Mr. Goff says: "I feel confident that if our shippers are as particular as they should be, shipping only first-class fruit, properly packed and put up, this season is bound to prove one of high market prices, as there is practically no fruit in England."

FRUIT, GOOD AND BAD.

Mr. John Driscoll, Inspector at London, reports that the S. S. Evangeline discharged

about 6,000 barrels of Nova Scotia apples on September 22nd in splendid condition. Although landed in good condition, some of the soft varieties went off very rapidly. The trade makes some objections to receiving varieties such as Astrachans, as they claim that these injure the reputation of Canadian apples. This emphasizes the fact that fall varieties should be picked early and shipped in boxes rather than barrels if satisfactory returns are to be expected.

Mr. Driscoll also reports the arrival on the S. S. Iona of 1424 barrels of apples and 46 boxes of pears. The apples were of many varieties, and arrived in satisfactory condition, but the pears were very inferior, and both consignees would prefer not to receive such shipments.

In his bulletin on the "Export Pear Trade," which may be had free of charge on application to Mr. MacKinnon, of the department, at Ottawa, Mr. MacKinnon has summarized as follows: "The exporter of pears must never loose sight of the fact that in the British markets he has to compete with the best fruits in the world; that the French exporters have attained almost to perfection in their system of grading and packing, that the Californian exporters place upon the market annually thousands of cases filled with practically perfect fruit, of larger size and excellent appearance; and that, therefore, only the most rigid exclusive grading will result in the selection of such Canadian pears as will win a place in the esteem of the public in competition with the shipments already familiar to them. One further fact is of the importance, namely, that pears are sold individually or by the dozen, after passing through the hands of the importer and wholesaler; that each individual pear which comes from Canada is scrutinized first by the retailer, before being placed on show, and then by the consumer when it is purchased. The presence of a few pears in unsatisfactory condition reduces the retailer's profit, and as a consequence renders him less anxious to repeat orders for fruit from the same source. The Canadian exporter should therefore, 1. Grade carefully so as to have only one size in a package, and to exclude rigidly all under-sized or defective fruits. 2. Pack carefully in uniform packages plainly marked with the name and address of the shipper, the variety and grade of the fruit, and the word 'Canada" always occupying a prominent position."

FRUIT DAMAGED IN LOADING.

Fruit Inspector P. J. Carey, writing of his observations at the port of Montreal, reports to the Fruit Division that shippers make a great mistake in holding off shipping until the last moment, with the result that often the half or more of the entire shipment of handled, even from the cars, after 8 o'clock the last night of loading. When this is the case it is impossible to handle otherwise than roughly, consequently the fruit is often damaged more by the handling the last night loading on the ship than it is the rest of the week.

Question Drawer

CUTTING BACK PEACH TREES.

SIR,—When should peach trees be pruned or cut back.

JOHN THOMPSON, Cowal, Elgin Co., Ont.

The usual time for pruning the peach tree is in spring, just before the growth starts. This is the best time if the vigor of the tree is the chief consideration. If, however, the object is to thin the fruit for the current year and develop fruit buds for the year following, the cutting back may be done in June, when the young fruit has set.

BERTRAM'S SEEDLING APPLE.

SIR,—I send you four seedlings for your opinion as to their quality. This tree, of which the samples are the second years' bearing, came up in our shop yard, and it seems to be a vigorous and healthy tree and good bearer. I shall be pleased to have your opinion any time.

JOHN BERTRAM, SR., Dundas.

A fine appearing apple, of about the size of Duchess, and of about the same season. The skin is a pale straw color, suffused with stripes, splashes and tints of bright red. Had we not already the Duchess, we would commend this apple for further trial.

A GOOD WASH FOR FRUIT TREES.

SIR,—What is the composition of a good wash for fruit trees, and when should it be applied?

JOHN THOMPSON, Cowal, Ont.

For cleansing the bark of fruit trees of fungi, and oyster shell bark louse, lye washes are excellent. The concentrated lye or potash may be bought at grocery stores. This comes in pound cans at 10 cents each, or three for a quarter. A can of this powder is dissolved in an ordinary large pailful of water, and the solution applied to the trunks of the young trees the latter part of April or up to the 15th of May, by means of an old broom or a swab. The solution is very caustic and will damage the hands or any clothing on which it falls. Great care must be taken, therefore, in handling it. We believe, however, that it is very desirable treatment for all sorts of young trees, and even for older ones which have been neglected. In cases where the trunks are attacked by the oyster-shell bark louse, this treatment is especially valuable. Soda is cheaper than potash and ought to answer equally well.

PEAR GROWING IN P. E. I.

SIR,—Mr. Bayfield, president of our P. E. I. Fruit Growers' Association has a photo of a pear tree in full bearing, with the crop of Clapp's Favorite which took the prize at our maritime fair. At his request I sent it you. What do you think of this variety for cultivation in Prince Edward Island in the light of your experience in the export of pears to Great Britain.

A. E. BOOKE, Alberton, P. E. I.

The Clapp's Favorite, if gathered before it begins to ripen at the core, is a fine export pear, and carries a little better than the Bartlett. The only difficulty is to get a proper temperature on ship board, and until we can have a guarantee of about 33 degrees F. for such fruit, it is better to grow Duchess, Anjou, Bosc or some such variety which will carry with apples.

FRUITS FOR NAME.

SIR,—I send you two pears and four apples for name. I received October number of your journal and quite agree with your remarks about fewer varieties. I have too many varieties in my own orchard and many orchards about are in the same condition.

ALEX. ARMSTRONG, Barrie.

Pear No. 1 is Idaho, and No. 2 Duchess. Apple No. 4 resembles Phoenix, and No. 5 resembles Princess Louise, but is not ripe enough to judge of its flavor, which should resemble that of Fameuse.

GRADE MARKS.

SIR,—I ship my apples north in sugar barrels, with canvas tops, and I would like to know if the Fruit Marks Act requires them to be branded.

A. ARMSTRONG, Barrie.

The Act requires the grade to be marked on all closed packages. We should judge that barrels with canvas tops, which are easily removable for inspection, are not closed packages, and that the only requirement in such case would be that the faced or shown end be a fair representation of the contents.

BRIGHT'S SEEDLING PEACH.

SIR,—I send you samples of a seedling peach tree which came up in my garden eight or nine years ago. Last year we had ten baskets of fruit from it, and this year seven or eight. This peach is fine preserved. Please give me your opinion of it.

Oct. 3rd, 1903. CHAS. E. BRIGHT, Brampton.

This is a fine seedling, size about 2½ inches in diameter. Color of skin creamy white, with a bright red cheek; flesh white, tender, very juicy, sweet, rich and delicious; season, beginning of October.

Yellow flesh peaches of the Crawford type have been so far most sought after in Canadian markets, on account no doubt of the popularity of the Early Crawford, and we know of no white flesh peach of the same season, more worthy of cultivation, than this seedling. For home uses, such as the delicious luxury of "peaches and cream," we doubt if any peach can surpass this one. It is altogether too tender to be cultivated as a market peach, consequently it would never be planted on a large scale.

ANNUAL MEETING OF THE ONTARIO FRUIT GROWERS' ASSOCIATION, TO BE HELD IN THE TOWN HALL, LEAMINGTON, ONT., NOVEMBER 24, 25, 26, 1903.

SPECIAL FEATURES.

1. Peaches.
2. Commercial Side of Fruit Growing.
3. Experiment Stations.

PROGRAMME.

Tuesday afternoon, Nov. 24, 2 p. m.

DIRECTORS' MEETING.

At this session will be presented a written report by each director of the work done in his district during the year. The secretary will present to the Association a record of the year's work throughout the Province, and business matters pertaining to the management of the Association will be discussed.

Tuesday evening, Nov. 24, 8 p. m.

PUBLIC MEETING.

Chairman—President W. H. Bunting.

Addresses of Welcome—Lewis Wigle, mayor of Leamington; John A. Auld, M.P.P., Amherstburg; C. W. Cady, President South Essex Horticultural Society; J. L. Hilborn, Leamington.

Reply to address of welcome—W. H. Rickard, M.P.P., Newcastle.

President's address—W. H. Bunting, St. Catharines.

Address—Hon. John Dryden, Minister of Agriculture.

Address—M. K. Cowan, M. P., Windsor.

Address—"Nature Study," by Dr. Muldrew, O. A. C., Guelph.

Address—"Co-operative Fruit Packing and Shipping," by W. H. Owens, Catawba Island, Ohio.

Music by Leamington orchestra.

Wednesday morning, Nov. 25, 9 a. m.

BUSINESS MEETING.

9.00—9.30—Arranging of fruit display from experiment stations.

9.30—9.45—Reading of correspondence and appointing of committees.

COMMERCIAL SESSION.

9.45—10.30—Report of Transportation Committee by G. C. Caston, Craighurst. Discussion led by W. H. Bunting, St. Catharines.

10.30—11.15—"Fruit Packages," by A. McNeill, Ottawa. Discussion led by E. D. Smith, Winona.

11.15—12.00—"Marketing," by commission merchants.

Wednesday afternoon, Nov. 25, 2 p. m.

ORCHARD FRUITS.

2.00—3.00—"Peach Growing in Michigan," by Prof. L. R. Taft, Agricultural Col-

lege, Michigan. Discussion led by J. L. Hilborn, Leamington.

3.00—3.30—"A Season's Observations in the Peach Orchards of Georgia," by A. B. Cutting, Guelph.

3.30—4.30—"Hardy Fruits for Northern Districts," by W. T. Macoun, Ottawa. Discussion led by A. D. Harkness, Irena.

4.30—5.00—"Power Spraying," by W. A. MacKinnon, Chief Fruit Division, Ottawa.

5.00—5.30—"Insects and Fungous Diseases of 1903," by Dr. Jas. Fletcher, Ottawa.

Wednesday evening, Nov. 25, 8 p. m.

PUBLIC MEETING.

Chairman—W. H. Bunting.

Introductory—J. Elliott, Principal Leamington High School.

Address—Dr. Jas. Mills, O.A.C., Guelph.

Address—"Civic Improvement," by Geo. R. Patullo, Woodstock, secretary of the Canadian Association for Civic Improvement.

Address—"Pear or Twig Blight," by Prof. F. C. Harrison, O.A.C., Guelph.

Address—"A Visit to the Old World," by L. Woolverton, Grimsby.

Thursday morning, Nov. 26, 9 a. m.

9.00—9.15—Report of Nominating Committee.

9.15—9.30—Appointing Standing Committees.

WORK OF FRUIT EXPERIMENT STATIONS.

Chairman—Dr. James Mills.

9.30—9.45—"New Fruits," by Prof. H. L. Hutt, O.A.C., Guelph. Discussion led by Prof. W. T. Macoun, Ottawa.

9.45—10.00—Secretary's report. L. Woolverton, Grimsby.

10.00—10.30—"Grapes," by Murray Pettit, Grimsby.

10.30—11.00—"Blackberries and Currants," by A. W. Peart, Burlington.

11.00—11.30—"Raspberries and Commercial Apples," by A. R. Sherrington, Walkerton.

11.30—12.00—"Apples and Cherries," by C. C. Caston, Craighurst.

Thursday afternoon, Nov. 26, 1.30 p. m.

1.30—2.00—"Plums," by J. G. Mitchell, Thornbury.

2.00—2.30—"Pears," by R. L. Huggard, Whitby.

2.30—3.00—"Apples," by W. H. Dempsey, Trenton.

3.00—3.30—"Apples," by Harold Jones, Maitland.

3.30—4.00—"Strawberries," by E. B. Stevenson, Jordan.

4.00—4.30—"Peaches," by W. W. Hilborn, Lemington.

Unfinished business.

HORTICULTURAL SOCIETIES.

Thursday morning, Nov. 26, 9.30 a. m.

Chairman—T. H. Race, Mitchell.

9.30—9.45—Introduction by the chairman.

9.45—10.30—"Planning and Planting the House Grounds," by W. Hunt, O. A. C., Guelph.

10.30—11.15—"The Arrangement of Flowers at Our Fall Fairs," by W. Gammage, London.

11.15—12.00—"The Work of Our Horticultural Societies in Our Towns," by A. K. Goodman, Cayuga.

Thursday afternoon, Nov. 26, 1.30 p. m.

1.30—2.15—"The Coleus and Other Foliage Plants," by J. S. Scarff, Woodstock.

2.15—3.00—"The Gladiolus," by R. B. Whyte, Ottawa.

3.00—3.45—"Winter Window Gardening," by Dr. Jas. Fletcher, Ottawa.

3.45—4.30—Address by H. L. Hutt, O. A. C., Guelph.

HOTEL ACCOMMODATION.

The Wigle House, Leamington, will be the directors' headquarters during the convention. Rates, $1.50 per day. The Huffman House, Deming House, and Ryall Hotel are also prepared to accommodate visitors at $1.00 per day each.

RAILROAD RATES.

All visitors to the convention will please secure single tickets and standard certificates from their respective station agents. These, when signed by the secretary and presented to the station agent at Leamington, will entitle the holder to a reduced return rate. Where two roads are used, certificates should be procured from each.

OUR BOOK TABLE.

RURAL SCHOOL AGRICULTURE, by W. M. Hays, Professor of Agriculture, University of Minnesota, St. Anthony Park, Minnesota; McGill-Warner Co., printers, St. Paul, Minn.

This is a unique book, containing two hundred most interesting exercises for practical class demonstrations in nature study, agriculture and household economics. It should be a great aid to teachers who wish to interest and instruct their pupils along these lines.

SYSTEMATIC POMOLOGY.—Treating of the description nomenclature and classification of fruits, by F. A. Waugh, Orange-Judd Co., New York, 1903.

This is a work of great interest to students of Pomology. It deals in excellent fashion with description, nomenclature and classification of fruits. Such a work should go far to reduce to uniformity the work of students of horticulture, especially in their studies of Pomology. No one making the least pretensions in such lines should be without it.

This is the Page Standard II Bar Fence, made of "Page" wire which is twice as strong as common wire. The continuous coil, note wavy appearance, allows for expansion and contraction which is important owing to Canadian climate. Our upright wires are in one piece and have strength of about 800 pounds. If made of pieces spliced at each horizontal, they would have a strength of only about 300 pounds. We also make gates, ornamental fences, poultry netting, nails and staples. The Page Wire Fence Co., Limited, Walkerville, Ont. 3

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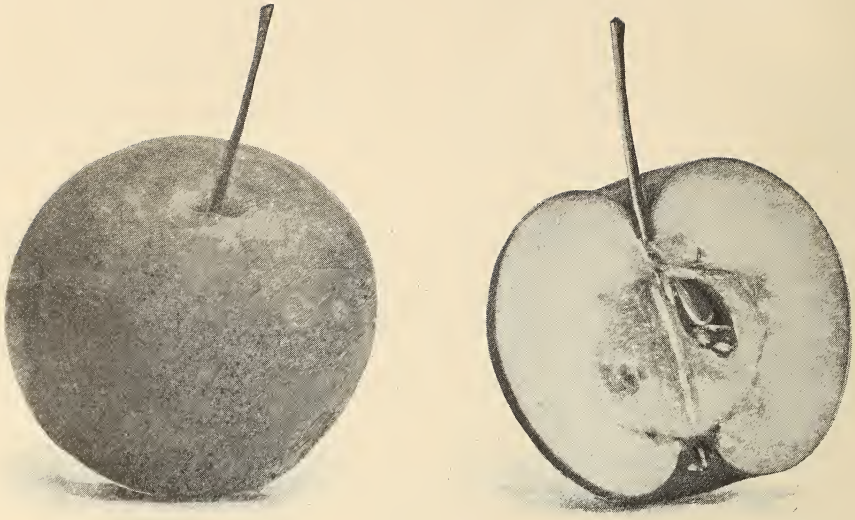


Fig. 2690. Transcendent.

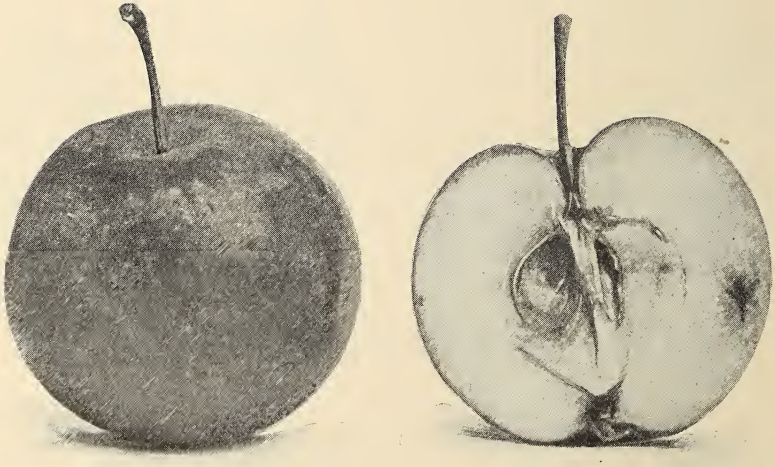


Fig. 2691. Hyslop.

THE
CANADIAN HORTICULTURIST

DECEMBER, 1903

VOLUME XXVI NUMBER 12

CRAB APPLES

TRANSCENDANT.

An excellent early autumn variety of the hybrid crabs.

ORIGIN: United States.

TREE: of moderate slender growth, hardy, somewhat subject to twig blight.

FRUIT: size $1\frac{3}{4}$ inches long by $1\frac{7}{8}$ broad, which is a medium size for its class; form roundish oblong, flattened at the ends, ribbed; color of skin, golden yellow with crimson cheek and thin whitish bloom; stem one and a quarter inches long set in an open deep cavity; calyx closed, segments large, set in a hollow, slightly corrugated basin.

FLESH: color yellowish; texture crisp and moderately firm; flavor acid, slightly astringent, becoming pleasant when fully ripe.

SEASON: August and September.

HYSLOP.

A well known and widely cultivated variety of hybrid crab. Its dark, rich, red color and its late season make it a valuable variety.

TREE: vigorous, of spreading habit.

FRUIT: size $1\frac{3}{4}$ inches by $1\frac{7}{8}$; form roundish ovate, obscurely angular; color a dark rich red, covered with heavy blue bloom, and having many obscure yellowish dots; stem about one inch and an eighth in length, set in an obtuse, regular cavity.

FLESH; yellowish, acid.

SEASON: September and October.

VALUE: very good for culinary uses and for cider.

ORANGE.

A fairly good dessert variety of hybrid crab.

ORIGIN: United States.

TREE: a slow grower, productive.

FRUIT: size medium, $1\frac{1}{2}$ inches by $1\frac{7}{8}$; form round, slightly flattened at the ends; color light orange, with minute white dots and russet veins; stem, slender, $1\frac{1}{4}$ inch in length, set in a deep open cavity; calyx closed, in a furrowed basin.

FLESH: color yellowish, with yellow veinings; texture a little dry: flavor mild, pleasant acid.

SEASON: September.

WHITNEY.

(Whitney's No. 20.)

One of the most popular and widely planted of the hybrid crabs, being large in size and good for dessert or cooking purposes and for cider making.

ORIGIN: Illinois.

TREE: very hardy.

FRUIT: large for its class, measuring 2 inches long by $2\frac{1}{4}$ broad; color waxen yellow ground nearly covered with dark red and crimson, and having a few minute, white dots; stem one inch long in a wide, obtuse, regular cavity; calyx closed in a flat wrinkled basin.

FLESH: color yellow; texture tender and juicy; flavor sub-acid, pleasant.

VALUE: dessert second rate; cooking first rate.

SEASON: August to September.

In the southern fruit districts of Ontario the hybrid crab apples are of little commercial value, and are never planted for profit. Here and there a tree or two may be found in the garden or on the lawn as an ornament, or to supply the house with fruit enough for preserves or jelly, which latter is highly esteemed. Thirty or forty years ago the Transcendent, the Montreal Beauty and the Yellow Siberian were the varieties mostly planted, and of these the Transcendent still holds its place, though largely supplanted by the Hyslop.

But, in the far north, where our fine commercial apples cannot be grown, it has been found that hybrids of the Siberian crab with the common apple are of the greatest value. The Siberian crabs proper (*Pyrus baccata*)

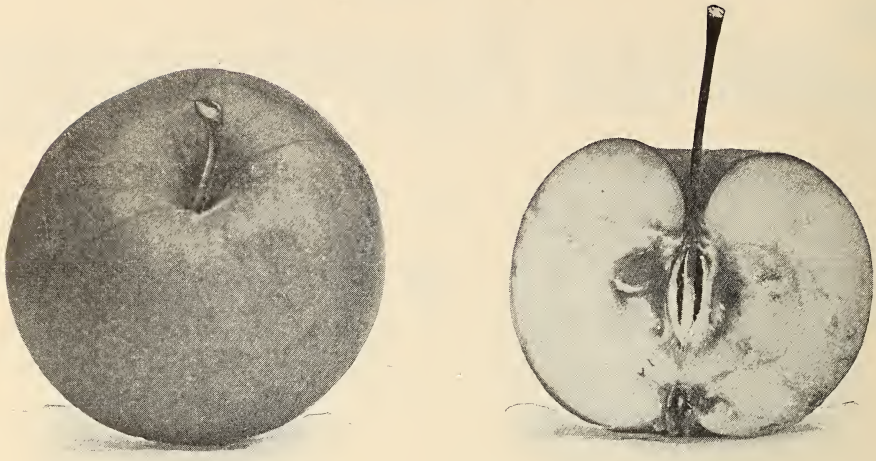


FIG. 2692. ORANGE.

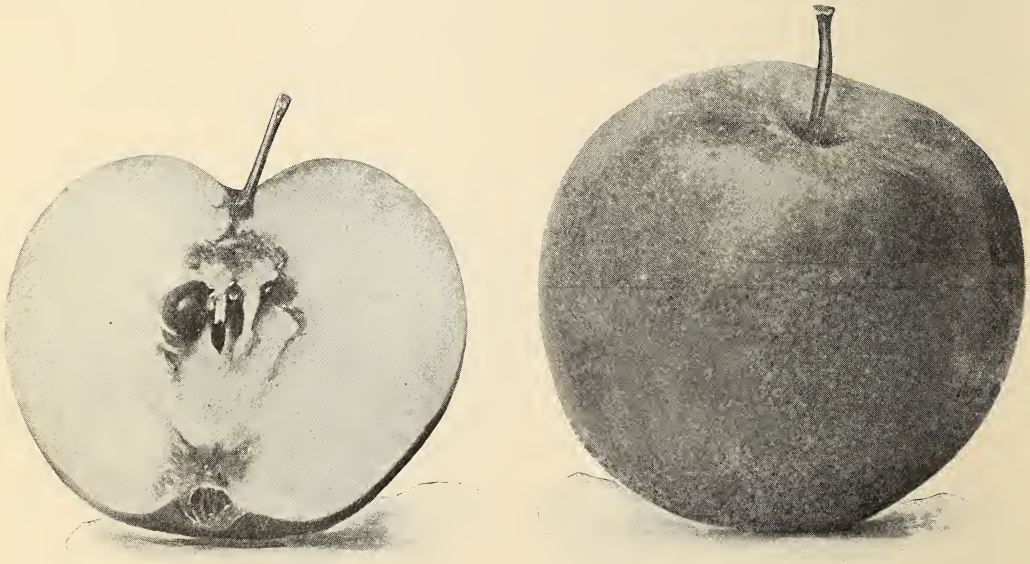


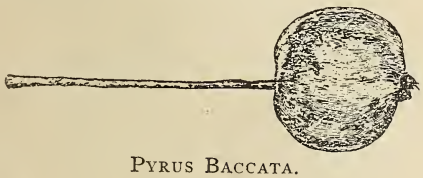
FIG. 2693. WHITNEY.

are distingueshed from the apple (*P. malus*) by their long slender fruit stalks, often two or three inches in length, by their firm flesh, which never becomes mellow, and by their deciduous calyx, which falls before the maturity of the fruit. But this distinct type of crab is chiefly useful to us for crossing with more valuable apples, to which their hardiness is thereby imparted in a remarkable degree.

In this month's issue we give our readers photogravures of four varieties of these hybrids, which are already widely cultivated in the colder parts of Canada, viz.: Transcendent, Hyslop, Orange and Whitney, and we shall be pleased to receive notes concerning their value from correspondents living in our northern sections.

Fisher, in Montana Sta. Rept, 1902, has been testing ten of the hardiest varieties of crabs, and reports that the best were Whitney, Transcendent, Hyslop, Orange and Greenwood, the latter of which is not known with us.

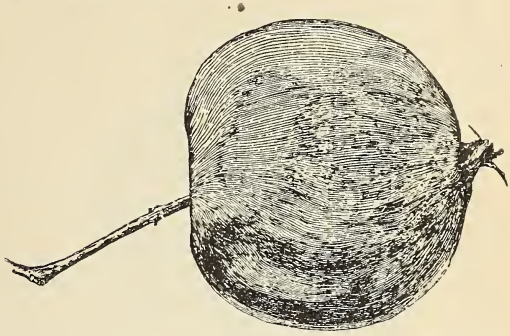
Dr. Wm. Saunders, director of the experimental farms of the Dominion, who is a noted hybridist, has been making praiseworthy efforts in this direction, and has already succeeded in producing several new varieties of apples which promise to be of especial value in the Northwest Territories.



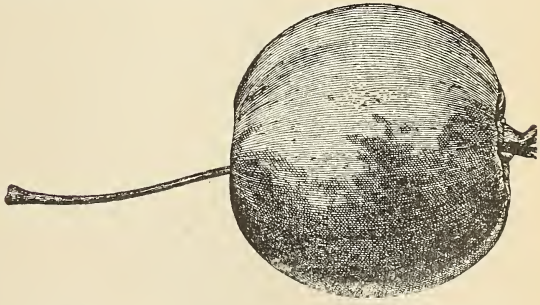
PYRUS BACCATA.

In this work Dr. Saunders used seed of the berried crab, Pyrus baccata, imported from St. Petersburg about ten years ago, and raised seedling trees at Brandon and Indian Head, which have proved perfectly hardy and productive, although the fruit was inferior and about as small as a cherry. (See Fig. 2694 after Dr. Saunders.)

In 1894 crosses of these seedlings were made with Tetofsky, Duchess and Wealthy, and out of a large number of crossbred trees, which varied much in form and size, several have been found worthy of distinction in the Northwest, and all seem to retain the hardiness of the crab parentage. We give illustrations from the Doctor's report of two of his hybrid crabs, in order to give our readers some idea of the progress so far in this work. We also attach his descriptions of the same.



CHARLES—Pyrus baccata female, with Tetofsky male, planted in orchard at one year from seed, April 28th, 1896. The tree has grown rapidly and wintered well. In the spring of 1899 it bloomed freely. The flowers were deep pink in bud, large when open, pinkish white, petals wide. The fruit set well and ripened about September 3rd. Size of fruit 1 9/16 inches across and 1 6/16 inches deep, distinctly ribbed, calyx persistent. Color a uniform yellow and very attractive. Flesh yellow, solid, crisp, juicy, with a pleasant flavor, mildly acid and very slightly astringent. Skin rather thin, fruit bakes well.



PIONEER.—Pyrus baccata, female, with Tetofsky, male. Planted in orchard as a yearling tree, April 28th, 1896. It has grown rapidly and it blossomed freely in the spring of 1899. The blossoms were pink in bud, large and pure white when open, petals wide The fruit set well and was ripe September 21st. Size of fruit 1⅞ inches accross and 1¼ inches deep, slightly ribbed, calyx persistent. Color yellow, with a pink cheek. Flesh white, fine grained, firm, crisp, moderately juicy, subacid, with a pleasant flavour, astringency very slight.

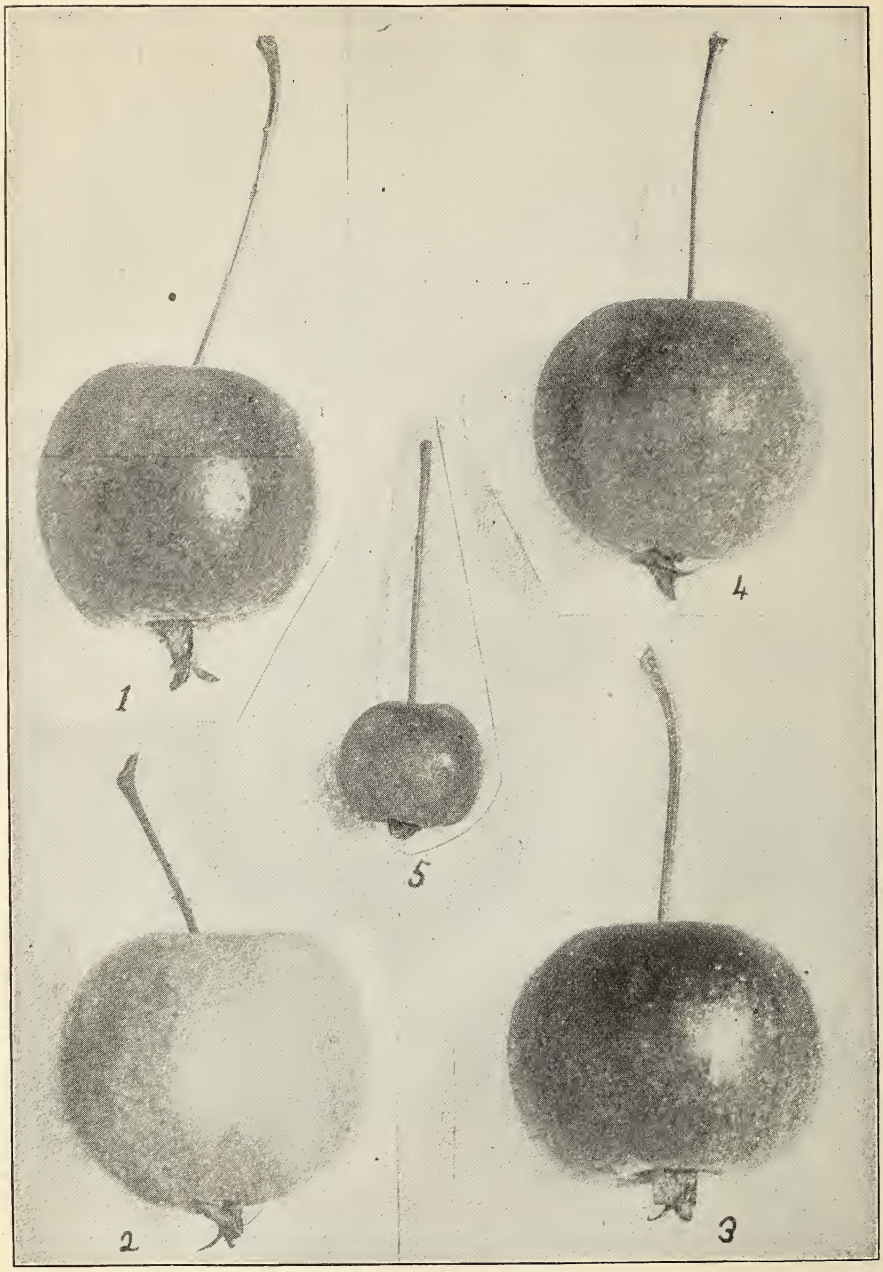


FIG. 2694. SHOWING SOME OF DR. SAUNDERS' HYBRIDS FROM PYRUS BACCATA.

Editorial Notes and Comments

FRUIT put away for winter use should be kept cool or it will soon decay. If in the cellar, the doors and windows should be opened enough to keep the temperature down as near the freezing point as can be with safety.

SCIONS may be cut and packed away in sand or fresh saw dust until needed. There are many apple and pear trees of unprofitable varieties; these should be marked and top grafted in early spring.

TOOLS, ladders, baskets, etc., should all be carefully gathered and stored. These may be repaired or painted as may be desired during the winter season. For this purpose a tool room heated with a stove is a great convenience.

PRUNE grapes, currants and gooseberries and pack away the cuttings in fresh saw dust, or in earth not too dry, for spring setting. One may just as well enlarge his plantation in this way as to pay the nurseryman to grow the young plants.

A WINTER MULCH of strawy manure, or of leaves and evergreen boughs over the earth about the strawberry vines, will prevent the alternate freezing and thawing which is so injurious to the plants.

THE LAWN should receive a top dressing of fine manure and ashes to keep it in a thrifty condition. Parts on which the growth is weakly should be marked for a fresh sowing of seed in the early spring.

IRRIGATION does not seem to be always advantageous. Jordan, of the New Jersey Station (Rept. 1902) got a better yield of asparagus from plots not irrigated than from those irrigated; and the ripening of Lombard plums was delayed six days by irrigation. Of small fruits the yield was considerably increased, raspberries 5 per cent., currants 10 per cent.

THE GARDENER should remember at this season to lay aside in a cellar a good supply of fine rich earth for use in spring in his hot beds and cold frames.

A DOMINION EXHIBITION is proposed for Winnipeg in 1905, and the project is being heartily supported by the public organizations of that city.

NUT GROWING would no doubt be a profitable industry in some parts. J. T. Lovett, of Emile, Pa., has about twenty-two acres of chestnuts, containing about 12,000 trees from 4 to 13 years old. They are set in rows 30 feet apart each way, and the ground cultivated. The thirteen year old trees are in bearing and yield about a bushel of nuts each year. The Paragon is the favorite, because of its productiveness. Chestnuts appear to be in great demand, and the whole crop of this orchard last year sold for $10 a bushel.

THE HYSLOP CRAB has brought the highest price of any at the South Haven fruit station, Michigan, during the past season.

THE HERBERT AND THE SARAH raspberries are two of the hardiest varieties so far tested at the Central Experimental Farm, Ottawa. The former was originated by our director, Mr. R. B. Whyte, and the latter by Dr. William Saunders, both of Ottawa.

THE SODA MIXTURE for spraying has been used in Europe for three years past, instead of the Bordeaux. It is more easily applied, is cleaner to handle, and adheres better to the foliage than when lime is used.

FIG. 2695. APPLE PACKING IN THE ORCHARD. A PICKER EMPTYING HIS BASKET ON THE PACKING TABLE.

It is a little more expensive than lime, but the advantages are in its favor. Five pounds of the soda are needed to neutralize the four pounds of sulphate of copper. The formula therefore would be:

4 pounds copper sulphate.
5 pounds washing soda.
40 gallons of water.

SPARKS' EARLIANA tomato has been tested for three years by Prof. Macoun, horticulturist at the Central Experimental Farm, Ottawa, and has proved itself the best early variety out of 93 varieties tested; the first fruit having been gathered on the 29th of July. The seed was sown in hot bed on April 3rd, the plants pricked out into strawberry boxes on April 25th, and planted in the open ground on June 2nd, four feet apart each way. The fruit is not only very early, but also of good size and quite smooth. The total yield of five plants was 77 lbs. 6 ounces, or about 15 lbs. per plant.

HARDY APPLES FOR THE NORTH.

WHILE in the most northerly parts of Ontario crossbred Siberian Crabs are the most promising varieties of apples, there is a line south of which some of our hardier varieties of Pyrus malus may be successfully grown, and in view of the rapid settlement of these parts we cannot too soon determine what varieties may be safely recommended for cultivation. Fisher, of Montana, Sta. Rept. 1902, reports on 64 varieties planted in 1895, of which only twenty-six are alive, and of this number only eight are worth growing. These are Wealthy, Yellow Transparent, Duchess, Okabena, Hibernal, Tetofsky, Longfield and Gideon.

THE WEALTHY APPLE.

The Wealthy apple seems to be growing in favor on all sides, and especially along the northern limits of its growth. It is perfect in form, free from spots, does not need spraying, is little affected with codling moth, and is withal beautiful to look upon and pleasant to the taste. Almost the only fault found with it is that it drops early from the trees, and this can be obviated by early harvesting. Mr. W. T. Macoun has an acre of Wealthys at the Central Experimental Farm, Ottawa, and has been exporting them in bushel boxes, tastefully packed. His records show an average profit for four years of $121.38 from trees set ten feet apart in the orchard each way.

Prof. Macoun exported his Wealthy apples to Glasgow last fall, and was much pleased with the result. On the 1st of October, 1902, he forwarded 59 cases of Wealthy in boxes measuring 10½ x 11½ x 22—the California 50-lb. apple box—and they were sold at 6s. 9d. per case.

SCAB ON THE APPLE AND PEAR.

EVERY season, unless climatic conditions are peculiarly unfavorable to its growth, this fungus becomes more and more troublesome to the fruit grower. Varieties that once were immune are now quite subject to it, and a large part of the crop is unfit for market, both

from its scabby appearance and its consequent small size. Besides this, the trees themselves are weakened in growth and are less productive, so that the fruit grower has in this fungus a most serious obstacle to his success. Eriksson (see Expert. Sta. Record Oct. 1903, p. 163) recommends immediate removal and destruction of fallen leaves from affected trees, and spraying or washing the bare trees with Bordeaux mixture, or copper sulphate solution, during the winter. In addition he advises two or three sprayings in spring and summer.

FRANCE A MARKET FOR CANADIAN APPLES.

IT has been already pointed out in these pages that France is asking for Canadian apples, and that for our first-class stock a good demand may be found in Paris among the first-class people who appreciate a good thing and are willing to pay for it. That this is not mere conjecture is proven by some recent sales of apples to go to Paris. The writer for example has a contract for 150 boxes of prime apples, to go to that city as a sample lot to open up a trade for coming years. They are all to be fancy colored apples, weighing not less than seven ounces each, to be wrapped in paper, and carefully packed with excelsior. For these the writer is to receive $1.72 per box delivered in Montreal. This is a high figure, but perhaps not too high for such a high grade article.

"Certainly not," says Mr. John Brennan, of Grimsby, "for I have been doing as well as that in our own country. I pack my fancy XXX Spys that way and sell them only on order. Last spring I made sale of some of my best brand for $2.50 a box, delivered in Quebec! I often make sale of this brand at from $1.50 to $2.00 a box in Canada during the winter."

Now we have no doubt that fancy stock, packed in an attractive manner, will command good value in almost any city in the world, even in the heart of an apple raising country.

FIG 2696. APPLE PACKING IN THE ORCHARD. THE CHOICE SAMPLES GO IN BOXES, AND ORDINARY STOCK IN BARRELS.

HOW TO PACK.

A subscriber, Mr. C. McIlthargey, of Stratford, writes:

SIR,—I was told that you had experience in packing apples in boxes, and as we cannot get barrels we have had some boxes made same as used for oranges, but find difficulty in getting them packed tight. Do you advise wrapping in paper or using some kind of packing, such as excelsior, for the top. Any information you give will be greatly appreciated.

The orange box is entirely too large for such heavy stock as apples; besides, the sides are made of material that is too thin, and outside pressure would bruise such unyielding fruit as apples. For apples either a forty pound box, measuring inside 9 x 12 x 18, or a bushel box measuring inside 10 x 11 x 20 is much more suitable. The former is the California pear box and the latter is the Tasmania apple box. These are made of ¼ or ⅜ inch sides, and ⅝ ends, and will be found to pack well.

We wrap all extra XXX fruit in tissue paper and pack against the top, in rows, four apples wide, three or four deep, and from 6 to 8 long, according to the size of the box and the size of the apples..

For padding we use excelsior, and the

FIG. 2697. APPLE PACKING IN THE ORCHARD. NAILING UP THE BOXES, USING EXCELSIOR OR WOOD SHAVINGS AS PACKING MATERIAL.

same under the cover to prevent the bottom lid from bruising the fruit when it is being nailed on. This stock is selected in the orchard and brought into the fruit house for wrapping and packing.

Ordinary XXX, or No. 1 apples, we pack in boxes from the packing table in the orchard, and the No. 2 in barrels, throwing the culls into heaps on the ground to be afterward gathered up for cider. No doubt it would be better to evaporate all No. 2 apples, instead of shipping them, and if this work could be done at home, on a small sized evaporator, probably this kind of stock could be made to bring the grower almost as much money as his No. 1.

CIDER APPLES FOR FRANCE.

THERE seems to be a most unusual shortage of apples in Europe, when even our Ontario culls are being bought up and forwarded to France for cider making. The Oakville Star of the 7th November has the following interesting item:

For over a week the Dawson Commission Co. have been buying up solid cull apples around the country and packing them in boxes weighing three hundred pounds each and holding as much as two barrels. The biggest rush was on Tuesday, when over a dozen teams, with large loads of apples, waited their turn on the hill to the wharf. Many of these apples were not marketable at all, being too small, but as long as they were sound they were all right for this purpose.

The steam barge, Lloyd S. Porter, came in on Tuesday, and the pier was pretty well filled up waiting for her. She called at Burlington and took over twelve hundred boxes from there. It was after eleven o'clock at night when she finished loading. All day the company had a big gang busy.

The shipment from here was about fifteen hundred boxes, or about three thousand barrels, which is the biggest shipment ever put out of Oakville. A number of carloads were also shipped from Bronte. The entire shipment from Canada to France will be one hundred thousand boxes. The taking away of these apples has left about twelve hundred dollars with our farmers for stock which otherwise would have largely gone to waste.

We purchased these apples at a low price, said the Dawson Co. to the writer, only about eight cents a bushel, but we took everything in, no matter how small or scrubby. The French buyer does not wish to take more at present, but we are just now negotiating with an English buyer for a shipment of the same class.

"I do not see," said Mr. Chapin, of Madalin, N. Y., "why your Ontario farmers do not forward their own fruit just as our growers do. I am forwarding agent for fruit growers along the Hudson river, and there every farmer ships his own stock, even if he has only fifty barrels."

DOES IT PAY TO SPRAY.

THE excellent results of faithful spraying with the Bordeaux for the prevention of apple scab is wonderfully evident in the Johnson orchard, near Simcoe, in Norfolk county, as will be seen by reading the article on page 355, by T. H. Race, of Mitchell, who was judge of fruit at the Simcoe Model Fair, and who visited the orchard the day previous to our visit.

There must surely be some conditions not fully understood when such remarkable results attend spraying in some instances, while in others, with the work apparently as well performed, the benefits seem to be comparatively small. It is only in the latter instance that there is any question as to whether it pays or not.

FACTORIES PAY GOOD PRICES.

"Now," said Mr. Fick, of Simcoe, "in selling to the factories a few spots are not objectionable, for they are removed with the skin. So, in raising apples for the factory, spraying is not a necessity, and all that expense is saved."

"But if you had clean fruit would it not bring you far more money if you were to export it?" we asked.

"Well, it is a question. The factory pays me 50 cents a hundred pounds, or about 25 cents a bushel, and takes every apple, so you see I have no culls to throw out. Then, if I were packing for export I would have to pick my apples by hand, and that would mean a great expense this year with the present high price of labor; indeed, I do not believe I could possibly get men enough to hand pick all the apples in this big orchard. For the factory I can shake them down and so handle my crop quickly, and with very little expense. Besides this, I have no barrels to buy, and this year, at 50 cents a barrel, they make a large item in the cost of handling the crop. Now the whole cost of handling my apples for the factory is not more than two cents a bushel, for we simply shake them down and carry them in the boxes furnished us. The packing, too, is no small item in putting up an apple crop for export, and I am saved that expense also."

"What varieties have you?"

"I have ten acres of Spy, ten of Greening and twenty of Baldwin."

"What quantity do you expect to harvest?"

"About 20,000 bushels, which will bring me from the factory about $5.000, with comparatively little expense harvesting them."

"Do you consider this light sand about Simcoe well adapted for apple raising?"

"No, it is not the best soil but by proper fertilizing we can grow fine fruit. When the trees were young I gave them plenty of stable manure, and now I do not apply stable manure but every year I sow a bushel of wood ashes about each tree. This, I think, helps to give color to the fruit, as well as vigor to the tree growth. Then for nitrates I grow clover. Every spring, say about the first of May, I plow under the clover, putting a chain on my plow so as to cover it well. Then I cultivate the orchard for about two months and about the first of August I sow clover again. Each succeeding year the clover seems to catch better, so that this year I had a wonderful crop, as you can see."

A COMPARISON WOULD BE INTERESTING.

Now, while there is no question that Mr. Johnson's course of so spraying and pruning his trees that they have yielded a crop of beautiful, clean fruit, worth the highest price in the market, is the ideal one for us all to aim at, still it would be interesting to have a comparative report tree per tree, showing the relative profits of the two methods. The one man has been to a very great expense throughout, from spraying to harvesting, while the other has done everything in the cheapest manner.

Perhaps the best commentary on it all is the determination on the part of Mr. Fick that next year, providing he can get the use of a power sprayer, he will have his orchard thoroughly treated. After reading the favorable reports upon the excellent results obtained in lessening scab with the use of the lime and sulphur mixture, his present intention is to give his orchard a thorough whitening with it in early spring.

We are all agreed in the great possibilities which may result from proper spraying, but with a large orchard the undertaking by hand is so enormous that many fruit growers would prefer to take their chances rather than undertake it, especially with the present high price of labor.

POWER SPRAYING WANTED.

There is no doubt that one half the spraying is so badly done that only failure could possibly result. The work is so dirty, so laborious and disagreeable, that the material is not properly prepared, nor is one-tenth of the leaf or fruit surface covered. Few orchardists seem to remember that only the parts covered with the mixture are safe from the tiny fungous spores which float about in the atmosphere. The time will soon come, we hope, when we shall have the professional sprayer, who will thoroughly understand his work, and who will take contracts for the season to do the spraying with a power outfit just as it ought to be done.

"It would cost me," said Mr. Fick, of Simcoe, "at least $500 to spray my big orchard by hand in the way my neighbor Mr. Johnson has done his. I have fourteen hundred trees about twenty years planted, and to spray them as they should be sprayed, would be no small undertaking."

"With a power sprayer," said Mr. Alex. McNeill, the chief fruit inspector from Ottawa, who was with us, "it would not cost you nearly as much as that. With our gasoline engine, which we used in the orchards between Ingersoll and Woodstock, we found that one could take a contract for spraying an orchard of bearing trees at about three cents per tree, and that with such a power sprayer the work could be thoroughly done for about ten cents per tree for the whole season. At this rate," said he "this orchard of Mr. Fick's, containing 1,400 bearing trees, could be sprayed for the whole season for an outlay of say $140."

AN IMPROVED BORDEAUX.

IN Great Britain and Europe during the past three years a mixture has been made with washing soda to neutralize the sulphate of copper instead of lime. It is claimed that this mixture adheres better than the ordinary Bordeaux mixture. Tests were made at the Central Experimental Farm this year to learn how much soda was necessary to neutralize 4 lbs. of bluestone, and it was found that 5 lbs. were needed. The formula for the preparation of the soda mixture would thus be:

4 lbs. copper sulphate.
5 lbs. washing soda.
40 gallons water.

An experiment was tried to determine the value of this mixture as compared with the ordinary Bordeaux, but as none of the fruit was spotted no conclusions could be drawn. The soda mixture is well worthy of a trial, for although a little more expensive, it is more easy of application than that made with lime, and often good lime is had to get in the country.

IMPROVING OLD ORCHARDS.

WHILE spraying is the best means of insuring apple and pear orchards against fungus and insect enemies, it is only one of the conditions of success. Top grafting to proper kinds, pruning and manuring are too much neglected in Ontario orchards.

"Is my orchard too old to graft over to better and more profitable kinds?" asked a neighbor. The trees were not over forty years of age, and were good for another sixty years, so we replied that it would pay well, for the new scions would come into bearing within two or three years, and in a few years the trees would be entirely changed over.

"I can see the results of last year's thinning of the young wood on my Spy trees," said another. "I followed the advice given in the Canadian Horticulturist about pruning, and instead of beginning at the trunk and cutting off the large limbs I took a high step ladder and began at the outside of the trees and thinned out the young bearing wood only. I continued this method in to-

ward the interior of the tree. It was a slower job than simply cutting off a few big limbs but it has paid me well, as a comparison with trees not so pruned plainly shows. The apples on the trees on which the wood was carefully thinned out were very large and fine; but on those not so treated they were small and uncolored."

"And I," said another neighbor, "have had extraordinary results from a very simple method of fertilizing. Some years ago I read in the report of the Ontario Fruit Experimental Stations a recommendation of a treatment for enriching orchard soil; it was the yearly plowing under of a cover crop of red clover, together with the annual application per acre of 50 lbs. of superphosphate and 50 lbs. of wood ashes. This was a very economical treatment, and I resolved to try it on the poorest bit of orchard on my farm. The soil was very poor, and for years the fruit produced had been almost worthless. The orchard was chiefly Spy apples and Bartlett pears. I have persisted in this treatment every year for about six years, and now this plot is acknowledged to be the best on my farm. Both the Spys and the Bartletts have given me splendid annual crops, the fruit has been large and fine, and more highly colored than in any other part of my orchard. I attribute the heightened color to the potash."

EVAPORATING SURPLUS APPLES.

IN some cases we have no doubt that it would pay the fruit farmer to evaporate his own second grade apples rather than sell them to a company who will only pay him from forty to fifty cents a hundred pounds. The only question is that of hands to do the work. A profitable machine, capable of turning out from 300 to 400 lbs. a day, can be purchased for about $100, and would prove a profitable investment, especially in cases where the family will turn in and help on the work. Evaporated apples sell at about six cents a pound; and since a hundred pounds of fresh apples would give about fourteen pounds of dried product, worth about 85 cents, or a little more than 40 cents a bushel for the green apples, it is evident that the investment would be a good one.

McArthy, of the North Carolina Experiment Station, does not favor the common method of bleaching apples by fumes of burning sulphur, but advises instead that they be dropped into a tub of weak salt brine, made in the proportion of one pound of clean table salt to sixteen gallons of water, and boiled together for ten minutes.

EDUCATION AND SUCCESS

AN uneducated child has one chance in 150,000 of attaining distinction as a factor in the progress of the age.

A common school education increases his chance nearly four times.

A high school education increases the chance of the common school child twenty-three times, giving him eighty-seven times the chance of the uneducated.

A college education increases the chance of the high school boy nine times, giving him 219 times the chance of the common schoo' boy and more than 800 times the chance of the untarained.—*The World's Work.*

OFFICERS OF NORFOLK FAIR

FIG. 2698 MR. J. THOMAS MURPHY.

THE protographs of the secretary and superintendent, which were forwarded at our special request, came just too late for our November issue, so we have pleasure in using them this month with some personal remarks added, which we are sure will be interesting to fair managers in other parts.

MR. H. H. GROFF, PRESIDENT.

Mr. Groff holds the following public offices: President Norfolk Union Agricultural Society, president Simcoe Horticultural Society, president Norfolk Poultry Association, vice-president Norfolk North Riding Agricultural Society, vice-president for Canada, Society of American Florists; he is also manager of the Molsons Bank, Simcoe, but it is in his work in crossbreeding the gladiolus that has more than anything else made him famous. Of his work in connection with the Fair, Mr. Murphy writes: "The consensus of opinion is that we have the right man in the right place. As the head of the Association, his executive ability is of the first order. He is always courteous and obliging to one and all, and in the allaying of all matters causing the least annoyance or friction in reference to any of the exhibitors or the public, his wise counsel and decisions give the most perfect satisfaction."

MR. J. THOS. MURPHY, SECRETARY.

J. Thos. Murphy, who has lived in Simcoe almost all his life, has occupied the position of secretary for this association 30 years. When first elected, the Fair occupied ten acres, on which was erected a medium sized hall and a small poultry house. The membership was limited, and the entries numbered some 1,600 or 1,800. To-day about 20 acres are occupied for Fair purposes, and the following are among some of the buildings erected thereon: A woman's building for ladies' work and arts, a carriage building, a grain, fruit and vegetable hall, a poultry house, four horse stables, five cattle sheds, 300 feet of pig pens covered with galvanized iron, four large sheep pens also covered with galvanized iron,a grand stand and secretary's office, and directors' room, with fine horse ring in front of grand stand, surrounded by a good picket fence, the buildings being all well painted and in good preservation.

The grounds are also much improved in appearance by the extensive planting of maple trees, around the outside of ground, also encircling the horse ring, and several beauti-

ful groves in various places in the grounds, thus making the grounds and buildings second to none in the Province.

The membership at present is between 400 and 500, and the entries average between 4,500 and 5,000.

Mr. Murphy occupies the position of president of the Canadian Association of Fairs and Exhibitions for the third term, is secretary-treasurer of the Simcoe Horticultural Society, and also secretary-treasurer of the Norfolk Poultry Association. He held, until its removal from Simcoe, for a number of years, the position of U. S. Vice-Commercial Agent at this point.

Mr. H. H. Groff says of him: "It is a well known fact that in organized effort of this kind success is impossible without an efficient secretary, and the great and continued success of this Fair is the best evidence of the efficiency and well known ability of Mr. Murphy, who, since its inception, has devoted his time and energy to a work that has become a monument to the honor of his name wherever the Fair is known. In spite of this great success and its merited recognition by the Provincial Association in the election of Mr. Murphy as its president, like all men of high mental qualities, he is a man of retiring disposition and modesty to the verge of self effacement, and these facts add to the satisfaction of his many friends, who recognize the force and ability of the man in the character and quality of his work."

W. F. KYDD, SUPERINTENDENT.

W. F. Kydd was born in the parish of Barry, County of Forfar, Scotland, the son of a farmer, who was a tenant on one of the finest farms on the Panmore estate. He left Scotland for America in 1878, and farmed for ten years in Kansas and Nebraska, leaving the latter state for Canada on account of his children's education. He settled in Simcoe thirteen years ago, purchasing a small farm inside the corporation of said town. This farm he greatly improved, and turned many an acre of stumps into strawberry beds and fruit trees. He has been greatly interested in agriculture and horticulture, and has for twelve years been a very prominent member of the Fair Board. For the last three years he has occupied the position of general superintendent, which he has now managed with marked ability and success, and in connection with all the work which he has undertaken, has done much to place the Fair where it is at present as one of the most prominent in the Province. As a further evidence of his ability, Mr. Kydd has been selected by the Department of Agriculture to judge horses at various fairs, and also as a speaker at Farmers' Institute meetings.

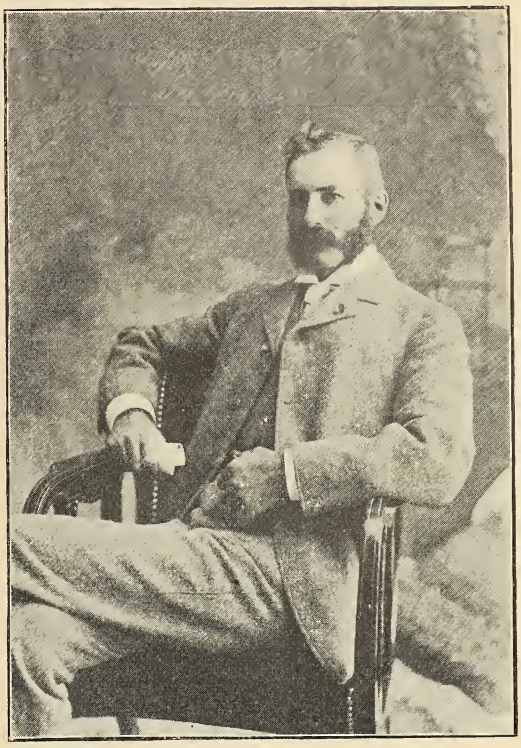


FIG. 2699. W. F. KYDD.

FRUIT EXHIBIT AT SIMCOE

THE town of Simcoe," says Mr. T. H. Race, of Mitchell, "has the best fall organization that I know of outside the larger cities. And they believe that they have the best fall fair there, even including some of the cities. Having visited their Fair this fall, held on the 14th, 15th and 16th of October, I am not disposed to question their belief. In many senses the Norfolk County Union is a model Fair. It is, to begin with, purely educative in all its features. And it is conducted with a system and enthusiasm that might well be copied by every other fall fair management in the province. There is not a fakir allowed within the gates, nor a circus feature of any kind permitted to show upon the ground. And yet the crowds go in greater numbers to see the Norfolk County Union, purely for its agricultural sights and lessons, than any other show of its kind outside Toronto and London that we have visited this season. The third day's gate receipts this fall amounted to over $1,700.

But I started out to speak of the fruit exhibit. The superintendent of this department was Mr. Albert Gilbert, and, by the way, every department has its superintendent, whose duty it is to see after that department and answer for its success or failure to a general superintendent, and through him to the chief management. The fruit was not well displayed owing to the loss of the horticultural building by fire last spring. But the fruit itself was a credit to the district and to the general high character of the exhibition. It had the advantage, of course, of the lateness of the season and was well colored. In Kings, Baldwins and Spys, although the exhibit was large and fine in each class, the quality was scarcely up to that in the same varieties grown in Oxford, Perth and Huron counties. In Newton pippins and Talman sweets I had seen nothing any place to compare with the Simcoe exhibit. This statement applies to quality, size and beautiful coloring, which of course includes quality. Two other old varieties, the Spitzenburg and Yellow Bellflower, were by long odds the finest I had seen this fall. The Spitzenburgs were simply beautiful. Ben Davis, Ribston pippins and Alexanders did not compare with those same varieties grown further north, but Greenings. Fall pippins, Seek-no-furthers and Russets were extra fine. Taken altogether, the Simcoe apple exhibit was extra choice and selected with care and judgment.

In making up the collections I might point out that not enough attention was given to covering the season. Every collection, if not otherwise specified, is supposed to be for family use. Some of the collections shown at Simcoe, though made up of good varieties, did not start till late in the fall. Some had an early fall variety and then had nothing till winter. This feature will be corrected by Superintendent Gilbert in future.

The display of pears was very creditable, though it might be improved upon in so favorable a district as Norfolk county. The plum season was past, but the samples of peaches shown was convincing evidence that the district about Simcoe is especially adapted to peach growing. There were some very handsome specimens of late peaches shown by Mr. W. F. Kydd, the general superintendent, who has recently located at the west of the town, and has already a very handsome peach orchard and vineyard planted out and in full bearing. Mr. Kydd intends to demonstrate the possibilities of Simcoe as a peach district, and is already making an excellent showing."

GROWING RHUBARB IN THE CELLAR

BY

H. L. HUTT, B. S. A.,

O. A. C., GUELPH.

MOST farmers who have a garden at all usually have a good supply of the old fashioned pie plant or rhubarb. This vigorous growing plant provides a wholesome substitute for fruit early in the spring before strawberries come in. It is not generally known, however, that it can be made to produce its crop in an ordinary cellar during the winter, when it would be probably more appreciated than when grown in the usual way in the garden in the spring. The accompanying illustration shows the growth in March of a couple of roots in an ordinary vegetable cellar, after half the crop had been pulled.

FIG. 2700. RHUBARB GROWN IN A CELLAR.

The rhubarb plant makes its most vigorous growth under natural conditions early in the spring, when its large leaves store up in the thick fleshy roots a large amount of nutriment for the production of seed during the summer and growth early next season. To get the best roots for forcing it is well to allow the plants to make their full growth with little or no cropping of the leaves the previous season, and above all not to allow them to exhaust themselves by throwing up seed stalks. The more liberally the plants are manured and the better they are cultivated the stronger the roots become and the better the crop they will give when forced in the cellar.

In preparing the roots for the cellar they should be dug up late in the fall just before the ground freezes hard. They should then be left where they will be exposed to severe freezing for three or four weeks. If placed under cover in an open shed, or where they will not be buried in snow, it will be all the easier to get at them when it is time to take them to the cellar. About Christmas time they may be put in the cellar and should be banked with earth to keep the roots moist. Care should be taken that the plants are set right side up, as at that time it is sometimes difficult to tell which side of the ball of earth the crowns are on. In the course of a few days the roots will thaw out, and usually enough moisture is thus given off to keep them fresh for some time. They should be watched, however, as they may need water once or twice during the winter to keep the soil moist. The warmer the cellar, the more quickly growth will start, and for the best results a rather low temperature, about the same as that in which potatoes are kept, is best. In a partially lighted cellar the leaf blades will expand very little, and all the strength of the root will go to the development of the stalks. If the cellar is light it is well to darken the part where the plants are kept. If the roots are strong and vigor-

ous, often stalks one and a half to two feet in length and two inches in diameter will be produced with little or no expansion of the leaf blade at the top. When grown thus in the dark none of the chlorophyl or green coloring matter of the leaf develops, and the stalks are bleached to a pinky white. When cooked and made into sauce or pies they turn a beautiful pink color, and are much finer in appearance and flavor than stalks which are grown in the ordinary way in the garden. Cropping may begin as soon as the stalks are well developed, and may be continued for several weeks until the roots have exhausted themsedves, after which they should be thrown out, as they are of little use for growing again.

We would suggest that our readers try growing two or three roots this winter, and let us know the results next spring.

JOHN EVELYN

PATRON OF HORTICULTURE, PHILOSOPHER, PATRIOT.

GARDENING and nature study seem always to have been the delight of the most refined minds, and among these we find John Evelyn, of Wooton, Surrey, England. Born in 1620, he lived in a remarkable age, the times between Queen Elizabeth and Queen Anne. He was a "student of trees and plants and living things, cherishing beside these the history of the ancients, and a critical appreciation of music and its masters." As is evident from his famous diary, he was a scholar, a worker and a gentleman.

Shortly before Evelyn's day, says the Journal of Horticulture, there had existed a great taste for gardening among the gentry, and it was the practice to strew the floors with sweet smelling herbs and to have fragrant flowers in the bedchambers. New flowers and fruit trees were imported from the Continent; gardens were carefully laid out "with quaint conceits of mazes and strangely cut Yew hedges." Deer parks abounded, and hunting and hawking were the favorite amusements of country life. Gerarde, we know, had despatched plant collectors to the Levant in 1590, and others followed his example. But the period of the

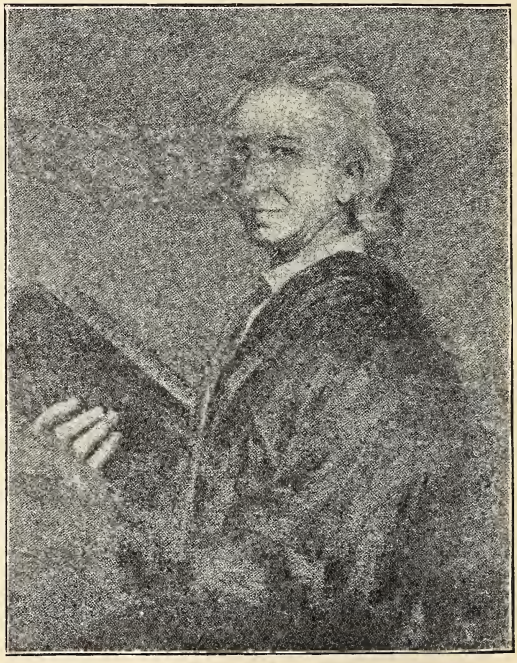


FIG. 2701. JOHN EVELYN, (1620-1706).

Civil War greatly destroyed the propensities of the Elizabethan reign, nor were they revived till the Restoration of King Charles II. to his throne. John Evelyn, the boy, was sent to his grandfather's home at Lewes

at the age of five, when he started his schooling. At seventeen he went to the University of Oxford, and from there he entered the Middle Temple, and for a time devoted himself to law. The riots in London, incidental to the period, drove the young man to Holland, though that country was also in arms, and he even served as a volunteer, but in a month or two was again back at the Middle Temple. In order to escape being pressed to take the Solemn League and Covenant, however, he was obliged to make a four years' tour, from 1643, through France, Italy and Switzerland. During his residence in Paris he became acquainted with Sir Richard Browne, at that time British Ambassador at the court of France, and in the summer of 1647 Evelyn married Sir Richard's daughter; settling some time afterwards at Sayes Court, in Kent, which he rendered famous. It was at Sayes (for a time occupied by Peter the Great of Russia after Evelyn left it) that he made those experiments and observations which he gave to the world in his Gardeners' Almanac and French Gardener, his ever-famous "Sylva: a Discourse on Forest Trees," a monumental work, indeed, and a grand record by itself to his wisdom and perspicacity. But with these he published also a work entitles "Pomona," dealing with the orchard, nor did he forget a pamphlet on "Salads." His "Terra; a Philosophical Discourse on Earth and Vegetation," published in 1668, is read with the very greatest interest at the present day. His "Fumifugium," of 1661, dealing with the smoke nuisance of London, again asserts the far-seeing mind, pregnant with reforms. But while Evelyn was so much a gardener and natural philosopher, "his foible was omniscience," and at the king's request he produced a work on "The Origin and Progress of Navigation and Commerce." The statements contained in the work being such as greatly incensed the Dutch, with whom England was then much at war. Besides the forenamed books and pamphlets, Mr. Evelyn published others, respectively entitles "Sculptura" (1662), a treatise on the art of engraving; "Numismata, a Discourse on Medals" (1668); and his "Parallel of the Ancient Architecture with the Modern" (1664), as well as others on subjects of lesser importance, including translations. His diary shows him to have been a regular attendant at the court of both King Charles and James II., and though he was so studious and inclined to seclusion, yet he constantly mixed up with the society and fashion and intellect of the period, all of which then concentrated in London. His diary is not so complete as that of Pepys, who was his close companion, but it is the product of a finer mind, and certain passages, like his description of the great fire of London, could not be improved on, as examples of descriptive English. After the destruction of so much of London by the fire, he lent his counsel and assisted Sir Christopher Wren and those who attended to the remodelling and rebuilding of the city. The social history of Evelyn's time shows that between London and the country the distinction was sharply marked. The country gentlemen seldom came to London, but busied themselves in cultivating their estates and in administering justice in their neighborhood. The provincial towns were the social centres for the district. They were a rude, uneducated race, "who drank hard and swore freely," but in their rough way they did their duty, and were revolted by the sight of the vices of the court and capital. The country clergy were hardly more lettered than their squires; the learned and eloquent clergy nearly all came to London. John Evelyn died one year before the accession of Queen Anne, at the age of 86 years.

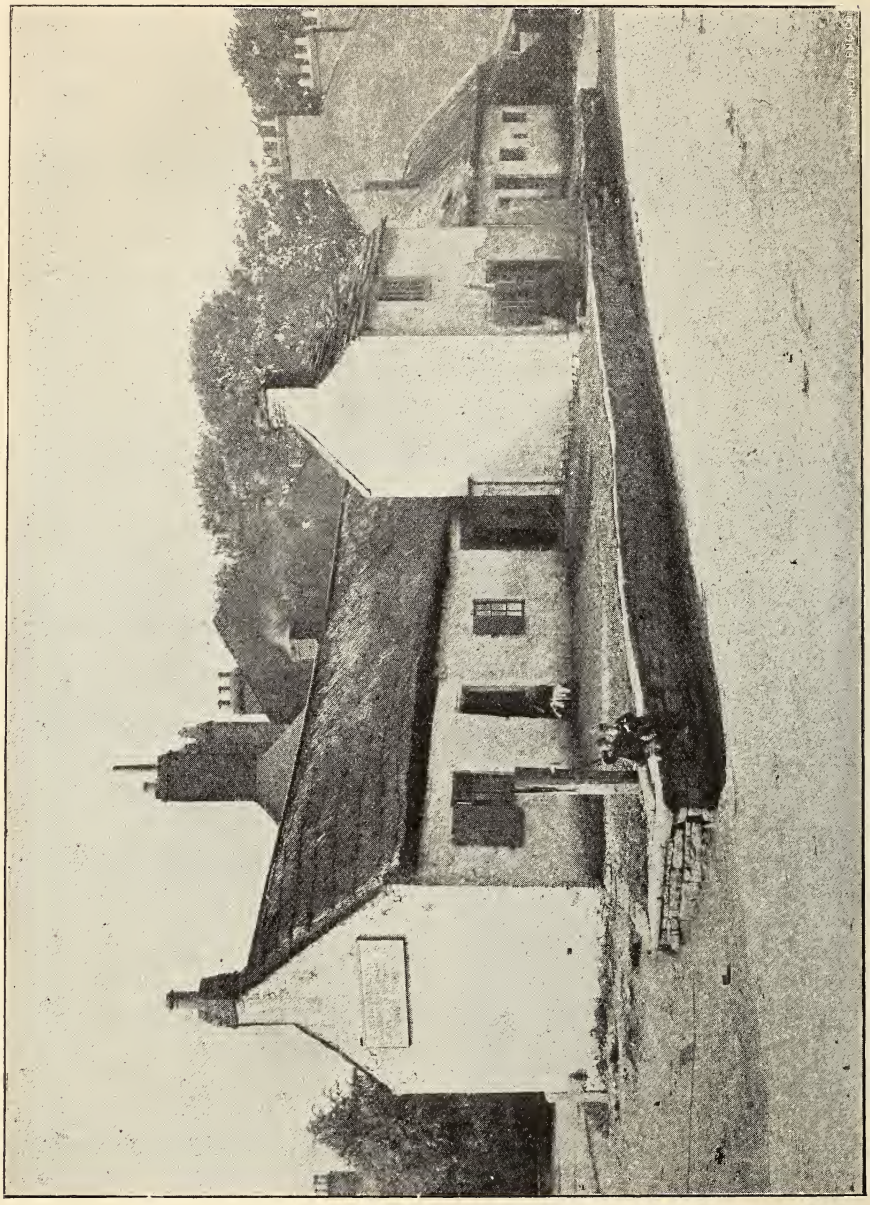


FIG. 2702. CHARACTERISTIC ENGLISH VILLAGE HOUSES.

AN ENGLISH FRUIT FARM

BY THE EDITOR.

HAVING an introduction from Mr. A. E. Kimmins, of Winona, to his uncle, Mr. A. J. Thomas, of Bargainhill, near Sittingbourne, in East Kent, we went down by a Thames steamer to Gravesend, and from Sittingbourne by carriage, four miles, to his lovely country home. The surroundings are picturesque, the land being somewhat hilly and well clothed with orchards and hop yards. On every side, as we approached, were large plantations of cherry, plum, dwarf apple and pear trees, reminding one of the fruit districts of Ontario, except that with us such plantations are young, while in England they are comparatively very old.

"I have an orchard of black cherry trees," said Mr. Thomas, "which must be nearly two hundred years old, for they were old trees in my grandfather's time."

To us it seems doubtful if any Canadian cherry orchard will ever endure to such an age. We have many cherry trees that have reached the age of fifty years, but they are already beginning to fail.

The lawn and hedges about Mr. Thomas' house were all in perfect trim, and such beds of immense pansies as we have never seen in Ontario were placed about in bold relief. What a delightful retreat from the great city of London! "I would not live amid the smoke and dust of that city for anything you could give me, so long as I have this country home," said Miss Thomas, and we heartily re-echoed the sentiment, applied even to our own country home in Ontario.

"What variety of cherries do you cultivate?" we enquired.

"Chiefly the Bigarreaus," said Mr. Thomas, "and of these the chief are the Amber, the Napoleon and the Yellow Spanish."

"Do you not cultivate the Kentish varieties of sour cherries?"

"Not of late years," said he. "We find more money in growing such kinds as Governor Wood, the Bigarreaus, and the Black Ox Hearts."

Walking through his great cherry orchards we were struck with the enormous size of the trees, and could easily credit them with yielding an enormous crop in favorable seasons.

"Do you cultivate your cherry orchard?"

"No," said he, "not after the trees reach bearing age. Then we seed down the ground to a sheep pasture.

"What are your prospects for a fruit crop this season?" we asked, seeing that the trees in most cases appeared to show very little fruit.

"The blackest we ever knew," said he. "The severe spring frosts, and the backward weather which has prevailed since, have combined to destroy nearly our whole fruit crop this season, so that, unless prices rule very high, it will not even pay for the harvesting. Nearly all fruits are destroyed alike by the frost, pears, plums and apples, as well as cherries. In consequence this ought to be a most favorable season for you Canadians to ship your fruit in to this country."

"How many acres of orchard have you?"

"About one hundred and fifty; mostly devoted to cherries, pears and apples. The apples are grown for the most part on the English paradise stock, and are planted 9 x 12 feet apart."

The top grafting done by Mr. Thomas is

mostly crown work, such as we have often described in this journal, and he showed us samples of this work, which were a perfect success.

In pears Mr. Thomas has tried many varieties, but has found the Pitmaston Duchess, grown as a dwarf, the best commercial variety for profit, and he has a large orchard of it. The Bartlett (Williams) he does not grow to any extent; he prefers Dr. Jules Guyot for market purposes, because it is larger and more attractive, although it scarcely equals it in quality.

After enjoying a cup of tea with our host we came away regretting that we had not more time to study the details of his methods, and concluding that the life of an English country fruit grower in the south of England was, after all, not very much different from that of the Canadian fruit grower, and that the chances of success was rather in favor of the latter.

THE APPLE MARKETS

LIVERPOOL.—Messrs. Woodall & Co. write: Receipts show a smart advance, being 80,395 barrels; but, far from proving excessive, it would almost appear that the quantity was scarcely sufficient to supply requirements. In the early part arrivals from New York were cloudy and unattractive, but later showed some improvement. Maines were generally satisfactory, though many of them were wanting in size. Canadians were excellent in quality, and have taken by far the first position on the market. It is regretable that so many varieties, in such small quantities, are being shipped, as they seldom bring their proper value, and the expense of samples so much reduces the net results. It is a matter for shippers to find if some arrangement can be arrived at by which these small parcels can be grouped together, and so avoid unnecessary labor and expense. At the opening there was rather a quiet tone, consequent on the generally unattractive appearance of what was offered, and there was a decline of 1s. per barrel, but this was fully recovered later, and the sound condition and good quality of all arrivals resulted in an active market, which closed at yesterday's sales at last week's full prices, to an occasional advance on choice parcels.

OTTAWA.

"THE McIntosh Red is the best family apple on the market." So said G. W. Hunt, of the Ottawa Fruit Exchange

"This is a first-class table apple, its season running from 1st October to 1st May," he added. "The apples are popular not only in Canada, but on the other side as well. Chicago will take all of this variety we can supply at $2 to $2.50 f.o.b. I shipped a car to Winnipeg the other day at $2.75 f.o.b., and immediately on arrival of this I got a wire back asking for 500 more.

"The quality of all apples coming in this year," continued Mr. Hunt, "is exceptionally good. There is no scab even on the McIntosh. This variety comes mostly from the St. Lawrence, about Iroquois. From the St. Lawrence district we also get Snows, Ben Davis, Russets, and a few Kings."

Mr. Hunt says over half the apples received in Ottawa this year have been shipped in boxes. Even a lot of No. 2 apples are received in this form. "The box we prefer," says Mr. Hunt, "is one 10 x 11 at the end, and 22 inches long." Mr. Hunt reports having received 85,000 barrels this season to date, as against 40,000 for the same period last year. — *Ed.*

APPLE BARRELS SCARCE.

THERE is a great scarcity of apple barrels in all parts of the province, and as a result thousands of barrels of apples will not be shipped or take noff the hands of the growers. The coopers cannot get material to make the barrels, and are unable to supply more than half the orders they have received, and what is still worse, for the buyers at least, is the fact that the prices of barrels has advanced from 60 to 70 per cent. during the year. Mr. Sherrington, salesman for the Walkerton Fruit Growers' Association, is one of the many shippers who have difficulty in filling orders owing to the lack of barrels. In the county of York thousands of barrels are stored in outbuildings awaiting shipment. As to the abundance of the crop, one orchard which in the early part of the season gave promise of yielding 75 barrels, will yield fully 200 barrels of fruit suitable for the export trade. This is in addition to 40 or 50 barrels fallen and immature fruit suitable for cider making and immediate consumption. Four trees of the Ben Davis variety yielded 36 barrels, or an average of nine barrels per tree, a remarkable showing, and one which it is doubtful has ever been surpassed. G. W. Gillbank, of Hagerman, representing a leading commission house, has purchased some 400 barrels of apples in York county at an average price of $1.10, which fifure Mr. Hood has also disposed of his output. In addition to a fine apple orchard, Mr. Hood has also ready for shipment 70 barrels of pears, which are quoted at the local market at $2 per barrel.

$1,500,000 FOR NOVA SCOTIA.

OF the apple crop of Nova Scotia, which this season will give 500,000 barrels for export to England, 155,000 barrels have already been shipped, the steamer St. John City, which sailed Saturday, taking 18,000 barrels. The remaining 350,000 barrels will be shipped between now and the middle of March, when the Australian apples begin to arrive. The average price netted by the Nova Scotia orchardists this season is $3 per barrel, which will make one and a half million dollars this year for the apple growers of this province, who are located in the counties of Kings and Annapolis. The Nova Scotia government's display of winter apples in the Crystal Palace, London, is creating much interest among British fruiterers and the public. The exhibit is tastefully arranged, and the big court is filled with apple scent. Some Blenheims measure a foot in circumference. The Hon. Mr. Drysdale, who himself has 200 barrels for export, says the export trade this year is over half a million barrels. Nova Scotia Ribstone fetched twenty shillings last week against the usual eighteen.—*Mail-Empire.*

AN OBJECT LESSON IN SPRAYING

BY T. H. RACE, MITCHELL.

THE most striking object lesson in spraying that ever came under my observation was afforded this fall by a drive of about two miles out from the town of Simcoe. The photo-engraving given below represents very faithfully the difference between apples sprayed and not sprayed. Just outside the town of Simcoe is an apple orchard of forty acres belonging to a Mr. Quin Fick. Immediately across the road is another of twelve acres now owned by Mr. R. H. Johnston. Both these orchards have been planted between 25 and 30 years, and neither of them up to this year had ever been sprayed. Of the two the 40 acre orchard had received perhaps the better care; both had been pruned occasionally and both had borne ordinary crops. One year ago Mr. R. H. Johnston, an enterprising resident of the town, and a man of considerable experience in buying and shipping apples, bought the property on which the twelve acre orchard stands. During the month of February of this year he went among the trees and pruned them out severely, at the same time scraping all the old loose bark off. In the early spring, before the leaves came out, he gave them a thorough spraying with lime and bluestone, in the proportion of about 12 lbs. of bluestone and 18 lbs. of lime to 50 gallons of water. Asked why he used so much lime, he replied that he believed it loosened the old bark and in several ways benefited the tree. At all events he said it did no harm and had a cleansing effect. After the leaves were out the gave a second spraying of lime and bluestone, with Paris green and white arsenic added. This was repeated after the blossom had fallen, and nothing more was done till the fruit was ready to pick, except plow the ground and sow it with cow peas. Altogether Mr. Johnston used about 1,700 lbs. of lime, 430 lbs. of bluestone, 20 lbs. Paris green, and 10 lbs. of white arsenic on his twelve acre orchard. On being asked why he used both poisons in such large quantities he replied that Paris green is oftentimes impure and uncertain, and he wanted to make a sure job of it. This latter, it seems to us, would have been accomplished with the arsenic alone even in less quantities.

Now as to results. This fall, out of thirty-five barrels of Baldwins, picked from the first rows, there was about one bushel of culls. The Spys would run even a less percentage of culls than that. From his twelve acres Mr. Johnston would sell nearly eight

FIG. 2703. APPLES UNSPRAY D AND SPRAYED.

hundred barrels at about $2.50 per barrel, while his close neighbor, Mr. Fick, was selling his whole 40 acre crop at 75 cents a barrel in the orchard. The product of one orchard went to Chicago as prime Canadian fruit, while the other went to the local canning factory.

Prof. Zavitz, of Guelph, and myself walked through both orchards and picked what we thought to be a fair sample of the fruit grown in each. These I had photographed, and are shown in the cut above. I do not believe that a single barrel of No. 1 apples could be gathered in the whole unsprayed 40-acre orchard. And I do not believe there would be ten barrels of culls

found in the whole crop picked from the 12-acre sprayed orchard. It will be noticed, by referring to the samples photographed that the spotted apples show a light color while the other two are much darker—a fine high color. This is true of the crop in each orchard throughout.

The only question is as to whether the same results could not have been obtained with a less quantity of material used. With Mr. Johnston it seemed to be not a matter of quantity or expense. It was an experiment he was engaged in and a sure result he was working for.

PRUNING PEACH TREES

THE unusual number of questions upon the pruning of fruit trees and vines indicates that the following report of experiments in pruning peach trees, conducted by Prof. J. C. Whitten, of Missouri Experiment Station, and published in the Experiment Station Record of September, will be of interest:

The experiments followed the severe winter freezes of 1898-99 in pruning back peach trees. The cold had killed practically all the fruit buds, while the wood of the trees was badly discolored to the heart. In the experimental work some of the trees were left unpruned for comparison. With others the new wood was pruned back about half, as is the customary yearly practice. In the majority of cases with the older trees the limbs were cut back into 3 or 4-year-old wood, leaving arms in the main branches 3 to 5 feet long. Most of the pruning was done in February, soon after the freeze, though in some instances it was continued until the leaves were just starting. The following spring the trees which were not pruned at all started into leaf growth first. They made a feeble growth during the summer, the growth being confined principally to the tips of the branches. There was almost no indication of growth in the body of the tree. Trees that had been pruned back severely were rather tardy in beginning growth in the spring. When growth finally started, however, it was very vigorous and continued throughout the season, some 6 to 9 feet of new wood being made, which ripened up well during the season. Old trees that were cut back to the ground leaving only a stump died in many cases. Those that did sprout made an unsatisfactory growth. Trees pruned back by cutting away 1-3 to ½ of the 1-year-old wood also made unsatisfactory growth, but little better than where the trees were left unpruned entirely.

The best results were secured in pruning back into the 2 to 4-year-old wood, the severity of the cutting depending upon the age and vigor of the tree. It was observed that trees with smooth, bright looking bark sent out branches from their trunks more readily than those whose bark was thick, rough, and dull colored. There was practically no difference in the results obtained in cutting back the trees at different times from just after the freezing until the leaves had made some growth. In the rejuvenation of orchards thus severely pruned, good cultivation to properly aerate the soil in spring and to conserve moisture during the summer is advised.

A PLEA FOR QUALITY OF FRUIT

IN an address at the recent annual meeting of the American Pomological Sosiety, held at Boston, Mr. G. Harold Powell gave some excellent advice in regard to growing fruit of first class quality. Many of the points which he brought out were noted with approval by Mr. W. A. McKinnon, chief of the Dominion Fruit Division, and are given here for the benefit of Canadian fruit growers. Mr. Powell recommended as summer apples for the United States, Red Astrachan, Sweet Bough and Williams; as autumn apples, Gravenstein and Alexander; for winter, the Greening, the Newton Pippin, which he stated had sometimes sold as high as $20 a barrel, the King, the Spitzenburg, Baldwin, Spy and McIntosh Red. He recommended top grafting the King on two-year-old Spys, stating that in this way a vigorous tree bearing good crops would be obtained.

Regarding the Ben Davis, Mr. Powell made a very cutting criticism, declaring it had only one quality to recommend it, namely, its color; and stating that no fruit would take a prominent place in our markets or would continue to be a profitable one for growers which depends upon a single virtue for its sale.

The Champion grape received a similar castigation. Its only virtue is its earliness, and this Mr. Powell thinks has made it one of the worst enemies of the grape grower, inasmuch as the price of the Champions, at first very high, drops almost to nothing. The last price of the Champion, or what the public are willing to pay after they have become acquainted with its wretched quality, fixes the price for all other grapes which follow, though they are infinitely superior in quality to the Champion. In other words, rock bottom prices having been once fixed, it is impossible to get back to normal prices.

Mr. Powell spoke rather more kindly of the Elberta peach, but is of the opinion that it also is not an unmixed blessing to the fruit growers. It is a splendid shipper, but has no quality.

The conclusion to be drawn from Mr. Powell's remarks is that whatever transient advantages may be obtained by the grower from the production of inferior varieties, it is to his permanent advantage, and it is his only wise policy to produce the highest quality in each sort of fruit which he places on the market.

Striking testimony to the value of such advice is furnished by some reports of fruit sales just received by the Fruit division from London, England. On October 7th there were sold a large number of half cases of California and other American pears, including about a dozen varieties. The Seckel, which is generally regarded as a pear of the highest quality, though small in size, sold for 12s.; the Glout Morceau for 13s. 6d; the Calabash (similar to our Bosc) for 11s; the Comice (one of the varieties recommended by the Fruit Division) for 11s. to 12s. If we contrast these prices with those for fruit of inferior quality we must conclude that the Englishman wants only the best fruit and that he is prepared to pay for it. Bartletts, which are certainly above medium quality, fetched 6s. to 7s.; Anjou, 9s.; Clairgeau, 7s. to 7s. 6d.; Duchess, 3s. 9d. to 4s.; Hardy, 2s. 6d. to 3s. 9d.; and Keiffers, which it is only fair to mention were "wet," only 10d. to 1s. a cask. Large quantities of Canadian apples, sold on the same day, brought all the way from 10s. to 25s. per barrel (the latter figure being for Ribstones), with the great majority at 15s. to 16s. On October 12 half cases of Comice pears were sold by the same firm for 11s. 6d., while the Duchess variety fetched only 4s. 3d., these being

the only two sorts of pears handled that day. The highest figure for apples on that date was 23s., again to the credit of No. 1 Ribstons, while the lowest prices were 12s. for No. 2 Fall Pippins, and 13s. for No. 2 Ribstons and Gravensteins. The wide variation of 10s. per barrel, between No. 1 and No. 2 Ribstons, is particularly worthy of notice, indicating as it does that quality is sure to tell.

BOXES FOR APPLES.

In view of the scarcity and high price of apple barrels this season, and of the fact that in some districts farmers find it impossible to procure barrels at any price, the Fruit Division recommends the general use of boxes. These can be had, knocked down, at almost any saw mill for about eight cents each, and they should not cost more than ten cents each made up. As these boxes hold about as many apples as a barrel, they will be found much cheaper than barrels at fifty cents and upwards. The boxes should be well and strongly nailed, and should hold about 40 pounds of fruit. The dimensions of these boxes, used by the Grimsby shippers, are 9 x 12 x 18 inches, while the British Columbia standard box is 10½x11½x22 inches, these being inside measurements in both cases. The boxes should be made of strong material, not less than ⅝ of an inch thick for the ends, and not less than ⅜ of an inch for the sides; the tops should have strips across the ends to prevent the weight of other packages, piled on top, from bearing directly on the fruit. It is also usual to leave open corners at the top and bottom for ventilation. Little or no packing material should be used, as purchasers like to find the package quite full of fruit. A sheet of cardboard at the top and bottom will materially reduce the amount of injury from bruises. But it should be remembered that even in this year of scarcity of barrels, it will not do to ship anything but first-class fruit in boxes, as the reputation of the Canadian box and of the Canadian trade in general will greatly suffer if inferior or common fruit is exported in the box or any fancy package.

THE APPLE MARKET

"ONE of the heaviest crop of apples ever before grown," said Mr. Chas. Hart, of the firm of Hart & Tuckwell, when speaking of the big yield in Nova Scotia. Mr. Hart has just returned from the Annapolis Valley, one of the greatest apple producing sections of Canada, where the far-famed Gravensteins grow to perfection, and this year they are of excellent quality. But this season a large proportion of the crop consists of Kings and Ribstons of very fine quality. Mr. Hart during his recent visit to Nova Scotia purchased about 35,000 barrels of the best winter varieties. In this market sales are reported of 5,000 barrels of choice winter fruit to arrive at $2.50 to $2.75. Other sales are reported to us of 250 barrels of choice fruit at $2.85; 200 barrels at $2.80; 100 barrels at $2.75, and 300 barrels at $2.80. Several car lots of good seconds are reported at $2.25 to $2.60. For round lots of apples on this market, No. 1 is quoted at $2.75 to $3.15; the latter figure being made for 100 barrels. Advices from New York state that Armour is in the market for apples in New York State, paying $2.00 to $2.25 per barrel for No. 1 and No. 2. —*Montreal Fruit Trade Bulletin.*

TENDER FRUITS AND TRANSPORTATION

FRUIT Inspector Scriver, who was stationed at Winnipeg for some time, has returned to Montreal greatly impressed with the prosperity of the west and its possibilities as a market for choice fruit. After a careful study of the trade in Winnipeg, he has come to the conclusion that the fruit growers of Eastern Canada will be able to capture and retain a good share of the western business, if they can only lay down their goods in as good condition as the fruit from California, Oregon, Washington and British Columbia. The western fruit is larger and higher colored, but has not the juiciness and flavor of the eastern article, and as the greater number of residents of Winnipeg came originally from Eastern Canada, they naturally prefer the fruit to which they have bee naccustomed.

The Winnipeg dealers are practically unanimous in demanding that all fruit, particularly the tender varieties, shall be packed in boxes similar to those used by Californian shippers. Hitherto Ontario peaches, pears, plums, grapes, etc., have almost invariably gone forward in baskets, which are always objected to in Winnipeg. None of the tender fruits except grapes have given results at all satisfactory when shipped in baskets. In every car of eastern fruit examined by Mr. Scriver he found from 40 to 100 baskets broken and the contents ruined. This in itself would go a long way toward wiping out the profit on a shipment. On the contrary, not a single box was found in any carload of western fruit. In those cars every tier of boxes is braced as soon as completed with stout uprights, and there is practically no injury to the fruit from pressure or jarring. This fruit is, of course, picked before fully ripe, and carefully wrapped in paper so as to stand a long trip. Even in the case of apples the Winnipeg merchants want tender fall varieties, such as Alexanders, Snows and McIntosh Reds, and even fancy winter apples, like Spys and Baldwins, put up in the forty pound boxes.

The matter of packages can be easily remedied, but the transportation problem is a far more serious one. Mr. Bunting, president of the Ontario Fruit Growers' Association, pointed out a couple of weeks ago that the freight on a carload of fruit from Hamilton to Winnipeg is nearly $200, and the express rate $400. An illustration of how these rates work out was given by Mr. Scriver. A consignment of pears, on which the express charges amounted to 60 cents per basket was being sold in Winnipeg while he was there for 75 cents per basket. In other words, the express company got four-fifths of the selling price of the fruit. It may be remarked that these pears would have brought at least 25 cents per basket in Hamilton or Toronto. The lake and rail route, say via Sarnia and Fort William, is about 18 cents per basket cheaper than all rail, but this involves handling the fruit four times oftener, and the number of baskets broken owing to rough usage is so great that the cheaper route is really no advantage.

These transportation rates would not be considered so extortionate by eastern shippers if the cars were rushed forward with all possible despatch. But they are not only delayed on the road, frequently owing to the congestion of freight at Winnipeg, cars f tender fruit are left standing for days in the yards before they are run up to the city. Nearly all the large wholesale establishments have switches right up to the rear of their buildings, still they each find it necessary to keep a man who does nothing else except hunt up missing cars and try to get them switched into position to unload. Mr.

Scriver mentioned a case of this sort in which he was particularly interested. A car of Fameuse apples from Hemmingford, Que., arrived at Winnipeg on Monday, Oct. 19th, and as this shipment was from his own country, Mr. Scriver was particularly anxious to see it unloaded before leaving for Montreal on the following Saturday. However, there was was no sign of the car up to Friday, when at his special request an engine was sent out Saturday morning to the yards at St. Boniface to bring the car into the city. The engine returned with the information that the car could not be found. Mr. Scriver left Winnipeg on Saturday afternoon,before the arrival of the car, which would certainly not be brought in until Monday, making a week at least that these tender apples had been lying in the yards.

EASTERN APPLES IN WINNIPEG.

Fruit Inspector Scriver says that the quality of the XXX apples shipped to Winnipeg from the east has been very good, and merchants expressed themselves as well pleased with this season's business. Apples were selling at about $4.00 per barrel, with fancy varieties still higher. Fancy Fameuse, from Quebec, which are this year exceptionally large and free from scab, were in good demand at $6.00 and Ontario Snows at $5.00. Retailers and consumers in both city and country seemed to want only first-class fruit, and were willing to pay for it. The same could scarcely be said of the middlemen who naturally tried to buy in the east at as low a figure as possible. Exporters to the European markets are paying as high as $2.25 per barrel, said Mr. Scriver, and consequently Winnipeg buyers could not get the best fruit at $1.85, which they had been considering as about the limit in price.

There was some complaint in Winnipeg that packers were filling the barrels too full, with the result that the pressure in heading bruised the tender fall varieties to such an extent that many of the apples at the top were found to be worthless on arrival. The packers were evidently afraid of the barrels going "slack," but they rather overdo their precautions to prevent that undesirable condition.

In speaking of the apple trade in general, Mr. Scriver mentioned that this year especially there is a good demand for XX apples, and there would be a much greater call for them if buyers could be sure of what they were getting. At present this grade is very uneven in quality, and it is a question if the Fruit Marks Act should not more clearly define its characteristics. Some large packers are putting up XX fruit that is nearly equal to XXX, and they find it a hardship to compete with all sorts of culls, which may now be legally marked XX.

SHIPPING FRUIT IN BOXES.

Fruit shipped in boxes or cases does not always escape bruising, because there is frequently considerable bulge to the tops, and when the boxes are stacked up in the usual way, bottoms downward, the weight of the upper layers causes considerable pressure on the fruit. More especially is this the case when the boxes are not placed with sufficient care to ensure that each rests on both protecting strips of the one below. It has been suggested by the Fruit Division that it might be better to place the boxes on the sides in the car, as in that way there would be no weight on the bulged portion. A firm of fruit packers and exporters in Burlington, Ont., is now testing this plan of shipping, and the results of their investigations will be awaited with interest.

GROWING AND MAINTAINING ORCHARDS

PROF. I. P. ROBERTS, CORNELL UNIVERSITY.

IF a hole be dug in the hard field, the soil will show indications that it has lost much of its original humus. Few or no natural drainage channels will be found. The soil, instead of being light and loose, is sealed, and appears "harsh and dead." If seeds be planted it is soon discovered that the soil too often has not the power to force the embryo plant to the surface nor to push it to a vigorous growth and mature fruitage. The vegetative growth is too frequently dwarfed, which results in lack of power to bring all of the fruit to perfection. Half of the fruit on the tree not infrequently shows unmistakable signs of semi-starvation.

That this is the case is not strange if it is considered what has been taken from the soil in fifty years of cropping. Let it be supposed that during the 50 years there have been taken off of each acre ten crops each of oats, wheat and corn and 20 of hay. The following table shows the amount of grain and roughage removed in 50 years, and the value of the plant food approximately:

AIR-DRIED MATERIAL REMOVED IN 50 YEARS.

Per acre.	Lbs.	Crops.	Lbs.
Oats, 31¼ bush.	32	10	10,000
Straw, 1,500 lbs.	—	10	15,000
Wheat, 16 2-3 bush. . . .	60	10	10,000
Straw, 2,000 lbs.	—	10	20,000
Corn, 40 bush.	60	10	24,000
Stalks, 10 p.c. moisture, 4,000 lbs.	—	10	40,000
Hay, 1½ tons, 3,000 lbs.	—	20	60,000
Total			179,000
			or 89½ tons.

PLANT FOOD CARRIED OFF BY 50 ROTATIONS.

Lbs. in round thousands.	Nitrogen lbs.	Phosphoric acid lbs.	Potash lbs.
Oats, 10.	165	69	48
Straw, 15.	69	42	265
Wheat, 10.	138	78	49
Straw, 20.	240	44	126
Corn, 24.	386	137	89
Clover, 40.	416	246	792
Mixed hay, 60	882	246	792
Total	2,296	732	1,929

PLANT FOOD CARRIED OFF BY 50 ROTATIONS.

No. of lbs.	Cost p. lb.	Value.
2,296 nitrogen	12½c	$287 00
732 phos acid.	4½c	32 94
1,929 potash.	4½c	86 80

Grand total of the value of the plant food carried off 50 years' rotation from each acre, as above, $406.74.

In 1895, among other investigations, an attempt was made to determine the amount of plant food used by a single apple tree: 1. Plant food contained in the tree when dug up, including branches, trunk and roots; 2. plant food removed by 20 average crops of fruit; 3, plant food removed by the leaves. It was assumed that an acre would grow 35 mature trees and that all of the leaves were blown off the land, which, of course, is not a fair assumption.

The 20 estimated crops of apples removed $147 worth of plant food. The trees contained $70 worth of plant food, and 20 crops of leaves $160 worth of plant food. If it is assumed that all the leaves remained on the ground, the total value of the plant food contained in the wood and removed by the apples was $217 per acre. If one-half of the value of the plant food is in the leaves for the 20 years to be taken, the value per

acre of plant food used by the orchard would be $297 per acre.

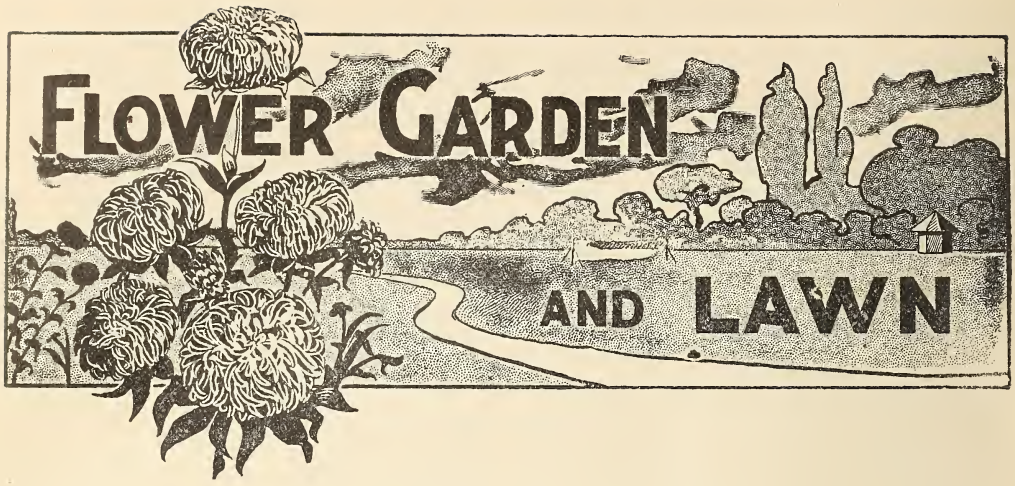
In either case it is seen that an orchard used more than simply sunlight and water. From many of the mature orchards, harvest crops other than apples have been removed continuously for from 20 to 50 years, in addition to the apples harvested. Is it any wonder that many of the mature orchards are far from vigorous, shy of bearing and perfect but a small per cent of their fruit? While it is true that many of our fields still contain vast stores of plant food, it is equally true that the cream of the land has been removed and that the remaining plant food is not readily available, in other words, it is tough.

What are the conditions the fruit grower meets when he attempts to grow a young orchard? He finds that most fields have been depleted of large quantities of the most easily available plant foods. For 50 years or more, double, often three-fold, more plant food has been removed than has been returned to the soil. The soil and subsoil too have often become compacted, hard and unresponsive. The drainage channels have been obliterated and can only be restored by long tap-rooted plants or drainage. The humus so necessary for good physical condition of the surface soil and for conserving moisture and for promoting chemical and biological action is deficient or almost entirely wanting. Is it any wonder then that heroic treatment, such as J. H. Hale gives his orchards, is necessary if the young trees flourish and fruit abundantly?

Good fruit is on the average salable at remunerative prices home and abroad. When well managed, the orchard areas are by far the most profitable portions of the farm. If, then, we set new orchards we should make the conditions similar to those which prevailed 50 or 75 years ago. This may be most easily accomplished by growing tap-rooted and leguminous cover crops, assisted in some cases by under-drainage. These will tend to promote drainage of surplus water, conserve moisture, make the soil more friable, add humus, promote chemical and biological action, and incidentally add nitrogen to the soil and oust some of the lazy potash and phosphoric acid.

Frequent and intelligent tillage will help materially in aerating the soil. It may be made to conserve moisture, liberate plant food and in all ways promote the comfort and well being of the growing or fruiting of trees. The vigorous, healthy growth resulting from cover crops and tillage makes the trees more resistant than they would be if they were uncomfortable, hungry and thirsty. On most of our soils from this on, profitable fruit growing must be founded on cover crops and tillage, supplemented, in some cases, by drainage and fertilizers.

Doctor the soil before you doctor the tree. Remove the cause, and the effect disappears. You can't cure rum blossoms with vaseline, you must break the demijohn; start the orchard where nature left off, and not where the renter did. The rivers run to the sea, overflowing the city and plain, yet the sea is not full. The waters return to the land, but the land cannot contain them. The roof of the natural reservoir is sealed because of ignorant tillage; the surface is like a leaky roof, which sheds part of the water and allows a part to pass through. The waters hasten to their home in the sea, since they are not welcomed by the land. The reservoir runs dry, the plants are sick unto death of thirst and hunger, and the bugs foreclose their cut-throat mortgages.—*Am. Agriculturist.*



DECEMBER NOTES

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH.

PLANT PROTECTION.—The first or second week in December is usually early enough to attend to the matter of giving some protection to plants and shrubs of questionable hardiness in the garden. As a rule the tendency on the part of plant growers is to be too good natured in this respect. In many cases the covering is applied too early in the season before the wood has had time to ripen and partially harden, or the plant had time to attain its normal winter condition; and in many cases the covering is altogether too heavy and close for the well being of the plant which it is intended to protect. Take for instance some of the more tender varieties of out door roses of questionable hardiness, such as La France, Fisher Holmes, and others of that type that are more or less of a delicate nature, especially in northern sections of the country; or take the more tender varieties of the Altheas or Rose of Sharon shrubs, of the beautiful dwarf though somewhat delicate Spirea, Anthony Waterer, and similar kinds of shrubs, these although tender do not require a very heavy covering during winter to protect them. A good heavy mulch of manure placed over the roots of the plant after the ground has become frozen slightly, and a light covering of straw or long sedge grass, bound loosely around the growth of the plant, will be found of much more benefit than a very heavy covering of the same material, which latter would effectually exclude any circulation of air around the growth, as well as induce and retain oftentimes an excess of moisture. This will bring rot and mildew into the growth during periods of alternate frost and thaw, besides affording—especially if applied too early in the season—a splendid harbor for rats and mice that will do a great deal more harm than severe frost will to the plants. Rats and mice usually seek out their winter quarters before severe weather sets in, and are seldom troublesome if the winter covering of plants is withheld until real winter weather sets in.

The winter protection of some of the more

tender border plants, such as Hollyhocks, biennial Campanulas, etc., does not require a close heavy covering of manure. A few pieces of thick brush wood or pine boughs, with a few leaves placed under or about amongst the brushwood, is a far better and a more natural protection than the heavy covering before mentioned. The best collection of the Campanula media or biennial campanula that I have ever seen was brought through the very severe winter winter of 1884-5 with only a covering of brushwood and a sprinkle of leaves, aided doubtless by the heavy and continuous covering of snow experienced that winter. In sections where the latter natural covering can be relied on there is no doubt no better plant protector, but in Southern Ontario, where nature's covering of snow is fickle and uncertain, a light covering such as I have mentioned is certainly beneficial to tender plant life, more especially in late winter and early spring when plant life is first exposed to cutting winds and bright sunshine, two very trying factors to tender plant growth at that season.

Several other kinds of winter covering can also be made effectual for plant protection. Tea chest matting, or mats made of sedge grass or rushes make good plant protectors. Or an apple or flour barrel without a top, turned bottom up over a rose bush or shrub, will afford ample protection as a rule. A light covering of straw or leaves placed around the plant, before the barrel is put over it, will materially assist its effectiveness. But barrels are unsightly objects on a lawn, pine boughs and even straw being much less unsightly and equally effective if carefully placed. If a barrel is used a few holes should be bored in the side to admit air.

In protecting spring flowering bulbs, or tender Japanese lilies where planted, a much heavier covering of manure can be used. In the case of the lilies they should be covered with at least ten or twelve inches of protective material, whether it be leaves, straw or long strawy manure. These beautiful midsummer flowering lilies can be successfully grown and flowered year after year in light well drained soils, if heavily protected during winter.

A covering of three or four inches of the materials mentioned will be ample for hyacinths or any of the spring flowering bulbs. Tulips, crocus, snowdrops and most of the narcissi really require no protection so far as hardiness is concerned, but I have found that these even come through the winter better with a light protection, more especially if the bulbs were planted late in the autumn, or perhaps during early winter.

CHRYSANTHEMUMS.—Plants of these, when the flowers have become shabby, should be cut down to within an inch or two of the soil, and the pot stood in a cool window and not given too much water for a time, the soil should never become dust dry, but should be kept only fairly moist. When water is given the plant, sufficient should be given to moisten all the soil, and no more given again until the soil shows signs of dryness. Old plants of these popular autumn flowers can be kept over if treated as I have described. They can be planted in the open ground usually about the end of April or early in May and grown on for next season's flowering. The tops of the growth should be kept pinched off as soon as the growth attains the length of four or five inches. This operation will require attention from April until July if good, bushy plants are wanted. Or cuttings of the young growth about four inches in length can be stuck in sand in March, and the cuttings potted into good soil as soon as rooted. The young plants should be kept pinched back until July as recommended for the old plants. Chrysanths can be grown during during the summer in large pots or planted out in the open ground and taken up

and potted before frost in the autumn. The pinching process as mentioned is necessary in all cases, if good plants and plenty of bloom is expected.

Amongst the new varieties sent out in the spring of 1903 that have been tested at he College, a deep rich yellow flowered variety, H. W. Buckbee, promises to be the best and most suitable variety for pot culture, being of a fairly dwarf and very robust habit, very similar in that respect to the old favorite, W. H. Lincoln, the color of its flowers being very similar, but even a more intense yellow, whilst the form of the flower is a decided improvement on the W. H. Lincoln variety. Other new varieties that deserve special mention are Globosa Alba, a pure white incurve; W. R. Church, having an immense bronzy crimson and old gold flower; Madame Marie Liger and Mdme. L. Chevrant, both having silver pink and white flowers, are both very pretty varieties, whilst the tall growing variety, F. L. Taggart, with its large beautifully semi-incurved lemon yellow flowers is a decided acquisition to the hairy type of chrysanthemums, being much more representative of its class than any of its predecessors that are such favorites, such as Louis Gochemer, Beauty of Truro, Enfant des deux Mondes, etc. It would be difficult to say which was the most admired by the crowds who have visited the O. A. C. to see the 'mums during the last week or two, whether the last mentioned variety or the variety, H. W. Buckbee. The latter is, however, certainly the most suitable for a pot plant. Miss Minnie Baily, a dwarf growing variety, having a bright pine rosette-like flower, also deserves special mention, as it is a decided improvement both in habit of growth, color and form of flower than the two varieties it was derived from, viz., Lavender Queen and Mrs. L. Perrin, both popular and well known varieties. The variety Miss Elma O'Farrell, introduced in 1902, is a grand flower, its extremely robust habit and its immense, rather flat shaped, but bright rosy magenta colored blooms, makes it a decidedly conspicuous and pleasing relief to the almost innumerable varieties and shades of color we have amongst the yellow, pink, dark and white varieties. No amateurs' collection of mums at least should be without this decided innovation in form and color amongst chrysanthemums. I may possibly be able to give in the next issue of the Journal a cut of one or two of these newer varieties of chrysanthemums that will show at least the form, if not the colors and shades of the new varieties mentioned.

Giving Air to Window Plants.—Fresh air is beneficial to window plants, but cold draughts should be strictly avoided. Open the top sash of the window, or open a window in an adjoining room when the room where the plants are requires ventilating, or remove the plants from the window if the bottom sash must be opened. There are very few days during the winter months that it is desirable to give direct ventilation on even the hardiest kinds of window plants.

THE NARCISSUS ABOUT THE FRUIT GARDEN

BRIGHT yellow jonquils and daffodils do better than well in corners and along the sides of the square or parallelogram that defines the orchard. Jonquils and daffodils are early, flowering in March. The bulbs are only 50 cents per dozen, and once planted will multiply and bloom ever after; frequently marking the sight of long abandoned places. Outdoor planting is decidedly the best, in the south, for these hearty bulbs. Plant them not less than ten inches deep; locate them in the sunshine.

FLORAL NOTES

BULBS FOR THE WINDOW.

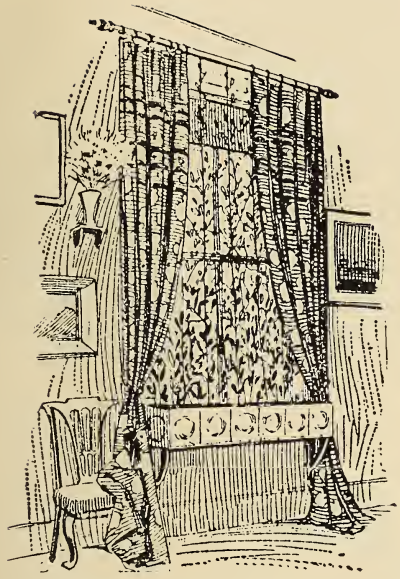


FIG. 2704. A WINDOW GARDEN.

VERY few homes in Ontario indulge in the luxury of a private greenhouse; it is therefore upon the window garden that most of our lady amateurs must depend for the practise of floriculture in winter. Many ladies, ambitious to excel, and fond of their floral treasures, attempt to grow too many varieties and find that they do not agree over temperature, or moisture, or sunlight, and in consequence that many of them look sickly and fail to bloom. Far better make a study of a few plants at a time, learn to know the conditions of their success, and then add by degrees to the collection.

Winter flowering bulbs are a very interesting class of window flowers for the beginner, and now is the time to make one's purchases.

"Last winter," says a writer in Country Life in America, "I learned for the first time how easily and cheaply one may have flowers in the home throughout the winter months if the bulbs are secured in the early fall and planted at intervals.

"We purchased only five bulbs of choice varieties, and the cost did not exceed the expense of a blooming plant or two at Christmas or Easter time. Moreover, half the pleasure derived from plants and flowers comes from watching their wonderful grwoth and development.

"We procured a number of four, five and six-inch pots, some fine, clean sand, and a quantity of well-rotted manure. The kind of manure suitable is practically odorless and easy to handle, and should be chopped or crumbled fine. We next mix the sand, manure and dry garden soil, using equal parts of each, and after the bottom of the pots had been covered with pieces of coal or crockery for drainage, the bulbs were planted at a depth below the top varying from one-fourth of an inch to an inch, depending on the size. After the bulbs had been watered thoroughly they were placed in a dark, cool corner of the cellar, where they remained until the tops were well above the soil. When in the cellar we did not water them oftener than once in ten days, but when the pots were transferred to the sitting-room they were given moisture each day. In from three to twelve weeks the pots were full of roots, and as the tops appeared above the soil one could not help but wonder how they had managed to keep their faces so clean and white."

Among the bulbs which are easily grown, and which give much satisfaction, we may mention the Narcissus, which may now be had in a great number of interesting varieties.

After an experience with a dozen varie-

ties, says the writer above quoted, we unite in awarding the blue ribbon to the Paper White narcissus. We started in by purchasing a dozen Paper Whites, but before the winter was over we had planted nearly two hundred of them, and there was hardly a day from October first until the crocus blossoms outdoors had hailed the advent of spring when we did not have a pot of these flowers in bloom. The last were not even planted until the middle of February, but the flowers were nearly as fine as those grown months before. The Paper Whites possess nearly every quality that makes a bulb desirable, as they are cheap, grow rapidly, are sure bloomers, the foliage remains green and attractive long after the blossoms are gone, and the fragrance, grace and beauty of the flowers themselves are unexcelled. We consider them superior even to the favorite Chinese lily, is the flowers last longer and the fragrance is much more delicate. We discovered a novel and very successful method of growing the Paper Whites, a half-dozen or more bulbs being placed on a two-inch layer of sand in a jardiniere or deep lily bowl, and covered nearly to the tops with sand and gravel, with stones of sufficient size to hold them firmly in place. They were kept in a dark corner of the room for two or three weeks, and in about six weeks the flower-buds, each containing a dozen flowers, were ready to burst.

THE WITCH HAZEL

(HAMAMELIS VIRGINICA)

THIS peculiar shrub, or small tree, is of the Hamamelaceæ family. It differs from hazel-nut, filbert, or cob-nut, which are all of the Corylaceæ.

The witch hazel is common in damp woods all over the United States and its peculiarity of producing flowers in the autumn is the same irrespective of climates. From the shores of Lake Michigan, south, the bushy, many angled little tree will clothe itself in light yellow flowers after the leaves have fallen from all the trees of the forest surrounding it; and although Gray and Wood are good authorities, in their botanies, that "the witch hazel blooms from November to January," observation has shown the writer that the blooms begin to open in September before the leaves are cast. In October the leaves fall and still more flowers appear, and in November every leaf will have been stripped from he tree and the full flush of blooms will clothe the branches from end to end. The flowers are perfect, or merely polygamous and in clusters on the curiously and sharply angled branches, and the stamens and petals show plainly how they are inserted in the calyx. Now, after November the stamens appear deadened, but the petals retain their golden hue, which is the reason our botanists have for saying it blooms till January.

By a right combination of circumstances the witch hazel in yellow blooms will be covered with snow and the holly ice, when side by side with it is bright with berries. Until after January the flowers cling to the leafless branches, and then another curious phenomenon appears. At this stage the fruit, or seed, is edible, and hangs on the branches until spring. The little fruit consists of an oblong, woody case, about half an inch in length, inclosing two hard nutlets somewhat resembling the seeds of an apple. These seeds are expelled with a

snapping sound, and any one curious to witness the phenomenon may stand near the witch hazel on a warm, dry, sunny day, and see it sow its seeds. The case splits nearly to the base, and after the seeds have been sent bounding, the appearance of the seed cases is like the wide open mouth of a serpent. It is an interesting experiment to cut the branches with the embryo fruit and keep them in a worm room until the expulsion sends the seeds bouncing around the room. Arboretums may well be adorned with these interesting trees native to our forests. Parks are interesting when adorned with shrubs and trees of marked and unusual features, and such is the characteristic of the witch hazel. The foliage is obovate or oval, wavy, toothed, and straight veined, slightly downy and alternate, not unlike the filbert or hazel nut.

Among the belated flowers, aster and golden rod, it is charming to the senses to come suddenly upon the wildling witch hazel in bloom. The sweet perfume invariably makes the proximity of the tree known, and it is curious to note the manner in which the light yellow blossoms cling to the tree. They are almost without stems, and are set in neat little nests up and down and all around every limb, seeming to nestle against the branch after the leaves have fallen.—*Park and Cemetery.*

SWEET PEA CULTURE.

I HAVE been asked to give my rules for growing sweet peas for the finest flowers, and the longest season of bloom. One—Always sow the seed early. Peas are the first seeds I put in the ground, and this just as soon as the soil can be worked. The advantage in this is that the plants need the strength that comes from early spring growth in order to carry them thriftly through hot weather. Two—Prepare the soil deeply and include some bone in the manure. Wood ashes also are excellent, as they keep the soil damp. Three—Sow in trenches something like old-fashioned celery trenches, about four or five inches deep. The seed should be covered with two inches of soil at the first, and then fill in almost but not quite enough soil in the trench later as growth proceeds, to bring the top even. The slight depression is useful for summer watering in case of drouth. Four—In the summer mulch the line of peas, and apply water liberally at times if the weather is dry. Lastly—Pick all flowers before they drop, in order to prevent seed bearing, which is fatal to continuous bloom. Follow this course and any one can grow sweet pea to perfection, which means to have plenty of flowers the season through.—*Vick's Magazine.*

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

CIVIC IMPROVEMENT NOTES.

BY THE EDITOR.

A CANADIAN FLAG AS A PRIZE TO SCHOOLS.

THE plan of enlisting the children in the improvement of their grounds is truly a most worthy one. Mr. G. R. Patullo, of Woodstock, our field secretary, originated a plan of giving a Canadian flag in each district to the public school making the greatest improvement in the grounds and surroundings of the school buildings during the summer of 1903.

A VISTA WHICH IS WORTH MORE THAN FLOWERS AND CARPET BEDDING.

THERE are few people who do not appreciate a fine landscape, or a pretty view half hidden by tasteful plantings of shrubbery and trees, and yet not one in twenty is able to analyse the picture into its component parts, or, given the ground work, to so dispose the plantings of trees, shrubs and climbers as to create a picture. To do this one must not only be an observant student of nature, but must also have an artistic genius.

About Hamilton, with the bay on the north and the water inlets on the west and the mountain on the south there is material that could be worked into most delightful park scenery by a landscape gardener, with comparatively little expenditure.

There is a fad with some gardeners for ribbon bedding, and there are places where perhaps a ribbon bed may be the most appropriate thing, as in a small city lot which is too small to be treated for landscape effect; but in large pleasure grounds, or in a public park, such work is entirely out of place.

PARK MAKING IN CANADA.

FREDERICK G. TODD, of Montreal, Quebec, has been selected to prepare plans and assist in drawing up reports for the future improvement of Ottawa as the Canadian capital. The commission recently appointed by the Dominion government to prepare a report on this work intends to acquire large areas of land for park purposes both inside and outside of the present city limits, and to lay out a connecting system of boulevards. The magnificent situation of the Parliament buildings, and the fact that the government owns a large part of the rugged and picturesque shores of the Rideau river, which runs through the

city, makes possible a beautiful scheme. Mr. Todd has recently made plans and submitted a report for the improvement of the grounds of Trinity College, Toronto, which embodies some interesting landscape problems.

IMPROVEMENT OF SCHOOL GROUNDS.

THE Youth's Companion will present to the 500 schools of the State of Illinois doing the best work in school improvement, a set of six historical pictures, and to the ten of those doing the best work, a large American flag.

SHRUBBERY ABOUT THE HOUSE.

TO one who has been accustomed to plenty of shrubbery about the house, it is surprising how noticeable is the want of it in the majority of lawns, and what a bare and forsaken look such places seem to present. Shrubs have a double value, one in their intrinsic beauty, another in their use. If the former be the special consideration, then they should be chosen with great care as to foliage, color, bloom and such characteristics; but if the latter, their individuality is of little importance so long as they accomplish the desired objects. One of these is the hiding of fence boundaries, of well curbs, of outhouses, of gravel roadways, or anything which breaks up the continuity of the lawn view. For such plantings it is not necessary to buy expensive plants from the nursery, for any wild bush will furnish a variety collection sufficient for liberal planting. Too often the home maker leaves his house fully exposed from the foundation up, quite unconscious of the nakedness which the house presents unless the foundations are at least partly clothed with clumps of shrubs. This is fairly shown in the accompanying engraving, where even a single shrub has done wonders in breaking up the angularity of the mason work.

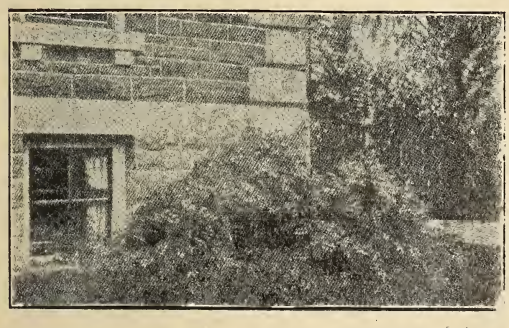
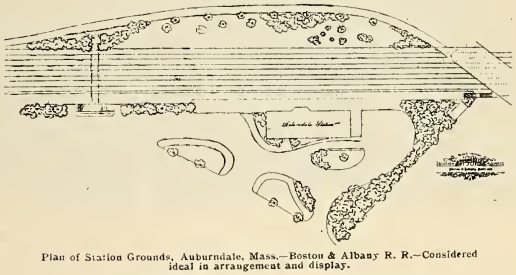


FIG. 2705. SHRUBBERY TO HIDE FOUNDATION

STATION GROUNDS.

ATTENTION has often been called, in these pages, to the possibilities of making these attractive, as has been shown in so many instances along the line of the Boston and Albany Railway. On most roads these places are so barren that waiting is a weary season; but it would be possible, by a little treatment, to make these station grounds so attractive that the waiting season would be delightful; and not only so, but they would afford a valuable object lesson on the treatment of a lawn, which could in many instances be copied in part at the homes of the travelers.



Plan of Station Grounds, Auburndale, Mass.—Boston & Albany R. R.—Considered ideal in arraugement and display.

FIG. 2706. PLAN FOR STATION GROUNDS.

As an example of what may be done in this direction, we give the plan of the station grounds at Auburndale, Mass.

Fig. 2707. View from Hamilton's Proposed Mountain Drive.

WORK OF THE CIVIC IMPROVEMENT SOCIETY, OF HAMILTON.

CITIZENS who during the past few months have been paying special attention to the care of their lawns, window boxes, rockeries, etc., received their rewards last night in the City Council chamber. It was the annual distribution of the City Improvement Society's prizes, and the room was scarcely large enough to accommodate the crowd of interested competitors and spectators. The floral decorations which were arranged by the ladies of the society were beautiful, and reflected much credit on the artistic taste of the ladies. This year the society handed out over $300 in cash prizes, besides the five handsome gold medals donated by Mrs. W. E. Sanford for the best kept lawns.

R. T. Steele, president of the society, occupied the chair, and seated on the dais with him were Judge Snider, Rev. Canon Forneret, N. D. Galbreaith (secretary), and A. Alexander.

In his opening address President Steele said that the presence of so many citizens satisfied him that the citizens generally were interested in the work of the society. The movement started by the Hamilton society was spreading. Even Ottawa has taken up the work of city beautification, and purposed spending much money on it. The

matter of city improvements was no longer considered a fad. It was a necessity. In that respect Hamilton was ahead of any other city on the continent. After hearing the remarks of visitors to the summer carnival he was satisfied on that point. The work of the City Improvement Society was doing much to advertise the city. Continuing, Mr. Steele referred to the fine condition of the grounds surrounding T. Upton & Co.'s factory. He hoped many other manufacturers would follow Mr. Upton's example in future years. The school surroundings and church surroundings had been improved during the last year, but in the latter case there was still room for improvement. Getting down to the civic matters, Mr. Steele said that the board of health was not given a fair chance by the aldermen. It was never given sufficient money to do its work properly. He criticised the aldermen for cutting down the board's grant this year so that the system of semi-weekly collection of garbage during the summer months had to be abolished. He was glad that the trees had been handed over to the care of the parks board. They were one of the city's most valuable assets and would now be properly cared for. Regarding the work of the police, he had no complaint to make about the officers, yet they did not give the society and board of health the support they should. The cause thereof was that there were loopholes in several of the by-laws. These should be plugged up. The society expected to get the Beckett drive fixed up and opened to the public very shortly. In conclusion, Mr. Steele that that he hoped that it would not be long before the city would have a by-law making it an offence to spit on the sidewalks. He then read a letter from Chairman Stewart, of the board of works, expressing regret at his inability to be present.

Secretary Galbreaith was the next speaker. He explained the nature of the work which the society undertook this year and gave credit to President Steele, Mrs. Sanford and F. B. Greening for assisting the society financially and otherwise, in making the competitions a success.

The presentation of prizes then began, Rev. Father Holden, superintendent of the separate schools, and James Chisholm, chairman of the Board of Education, presenting the prizes for attractive window boxes.

Father Holden said he was pleased with the work being accomplished by the society. He was particularly interested in the work among the school children. That he considered was a most important branch of the work, for the children of to-day would be men and women of a few years hence. As a result of the efforts of the children the grounds surrounding the separate schools had been made more beautiful this year than ever before.

Mr. Chisholm said it was a privilege for him to be present to represent the Board of Education. The board did not claim any credit for the success of the society's scheme. The board, previous to this year, had been dilatory, and was thankful to the society for calling its attention to the fact that the grounds surrounding the schools required some care. The society was doing a great work for the city, and personally, he wished it every success. It had made Hamilton one of the most beautiful cities in the world.

The presentation of prizes donated by President Steele for corner rockeries came next, the presentation being made by Mrs. Steele, assisted by F. B. Greening.

Mr. Greening made a few remarks. He said the cornery rockery competition was, in his opinion, among the most important of the society's competitions. The rockeries were useful, as well as ornamental, for they prevented careless people from cutting across the corners and thus destroying lawns. He hoped more corner rockeries would be built next year.

Mrs. F. B. Greening, assisted by A. Alexander, presented the prizes for rockeries.

Mr. Alexander agreed with the previous speakers that as a result of the society's work the city was each year becoming more beautiful. He was proud to be a member of such a society. He urged all citizens to assist the society by becoming members.

It fell to the lot of John H. Tilden, chairman of the parks board, to announce the result of the ward foremen's competition. He thought all the foremen were entitled to great credit for the cleanliness of Hamilton's streets. As a result of their efforts Hamilton was known all over the country as the cleanest city on the continent. It was impossible for the judges to say which was the best kept ward, and for that reason it was decided to give the prize, $25 in cash, to them to divide as they saw fit.

Thomas Towers, president of the Ward Foremen's Association, accepted the prize from Mr. Tilden's hands, and thanked him for the kind words he had said about the foremen. There was no doubt that the society was doing good work. The foremen were no longer troubled by people throwing waste paper, grass, etc., on the streets.

The gold medals, donated by Mrs. Sanford, as first prizes in the lawn competition, were presented by J. J. Greene, in the absence from the city of Mrs. Sanford. In doing so, Mr. Greene said he was sorry the donor was not present to present the medals herself. He was sure that it was a pleasure to Mrs. Sanford to assist in furthering the aims and objects of the City Improvement Society, and that she would like to have been present to congratulate the successful competitors. The citizens were indebted to President Steele and his society for making Hamilton such an attractive city. They were making it to the advantage of manufacturers to locate here and were doing much to make Hamilton an ideal city and advertise it as such. He hoped that before long the parks board would take hold of the mountain brow, especially the eastern slope, and make it a pleasure park for the citizens. He hoped the day was near at hand when the destruction of the brow of the mountain by quarrying operations would be stopped.

Judge Snider presented the second, third and fourth prizes in the lawn competition. He, too, made a few appropriate remarks. As a police commissioner, he thought the police officers were doing their best to assist the society in its good work. He spoke words of congratulation to the winners of prizes and words of encouragement to those who entered the competition but were not fortunate enough to win prizes.

Adam Brown moved a vote of thanks to the ladies who so tastefully decorated the Council chamber. In doing so he said he was pleased to receive his prize from the hands of Mrs. Greening, a woman whose husband's father had done more than any other man in the British empire to cultivate a love for flowers. Among the humbler classes in England his name was called blessed. In conclusion, he referred to the excellent support the society has received from the ladies.

George C. Coppley moved a vote of thanks to the press and the reporters, and presented to each reporter a suitable souvenir of the annual distribution of prizes. Cal. Davis responded on behalf of the scribes.

Rev. Dr. Lyle moved a vote of thanks to the judges, whose work, he said, had been faithfully and well done, and Rev. Canon Forneret moved that the thanks of the society be returned to the corporation for the use of the Council chamber.

All the motions were heartily carried.

A feature of the evening's proceedings was the presentation of a handsome clock to Newton D. Galbreaith by W. A. Robinson. After referring at length to the great improvement in the city during the past few years, Mr. Robinson went on to speak of the

important part Mr. Galbreaith, in his official capacity as honorary secretary of the City Improvement Society, had played in the city's Improvement. He reviewed the history of the society from its inception, and gave Mr. Galbreaith a lion's share of the credit for its birth and its successful career.

Mr. Galbreaith made an appropriate reply.

The last item on the somewhat lengthy program was the presentation to St. Vincent's school of the handsome flag won in the separate school competition. The presentation was made by Mayor Morden, who wound the flag about the neck of Rev. Father Holden, superintendent of the separate schools. As he did so James Johnson began to sing The Maple Leaf, and the audience rose and joined in singing the chorus.

A large number of plants, as well as cut flowers, used in decorating the room was loaned by Webster Bros. The collection included some Eulalia grass, which attracted much attention.

Fig. 2708. The Incline Railway to the Mountain Drive.

EAT APPLES AT NIGHT.

"EVERYBODY ought to know." says the Family Doctor, "that the very best thing they can do is to eat apples just before retiring for the night. The apple is an excellent brain food, because it has more phosphoric acid in easily digested shape than any other fruit. It excites the action of the liver, promotes sound and healthful sleep, thoroughly disinfects the mouth, and prevents indigestion and throat diseases."

The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

SHIPMENT OF FRUIT

DISCUSSED BY THE CONVENTION AT LEAMIACTON. THE ADVANTAGES OF CO-OPERATION AMONG GROWERS —BEST VARIETIES FOR NORTHERN ONTARIO—REMISSION OF DUTIES ASKED FOR.

LEAMINGTON, Nov. 25.—At this morning's session of the Fruit Growers' Association Mr. E. C. Caston, of Craighurst, presented the report of the Transportation Committee. They were particularly concerned in the matter of freight rates to the Northwest, which would soon be the greatest fruit market for our products. The fruit growers had had some influence in having an act put through to establish a railway commission. When it should be appointed they would have to consider the matter of having their interests properly represented before the commission. Mr. W. H. Bunting opened the discussion. The arrangements made by co-operation in some places had reduced the burden of express charges. But still, in reference to the service rendered, the express charges were out of all proportion.

Mr. L. G. Rice, of Michigan, asked whether any consideration had been given to the opportunity of shipping by steamer from Sarnia and neighboring ports to Port Arthur and Duluth. The vessels came from Lake Superior points with freight, and were glad to get freights back at almost ballast rates.

Mr. G. C. Gaston pointed out the double handling that was necessary for a joint lake

and rail shipment, which constituted a great difficulty.

FRUIT MEN'S NEEDS.

Mr. A. McNeill, of Ottawa, outlined the fruit men's needs. They wanted a change in classification of several kinds of fruit. Apples should be in class 8 instead of class 5. They wanted different arrangements about mixed cars. They wanted better local rates and lower rates on cull apples. One of their greatest wants was better accommodation at stations, and for tracing cars en route.

Mr. W. L. Smith, editor of The Farmer's Sun, dwelt upon the necessity for co-operation among all the farmers so as to present their claims upon transportation companies before the railway commission. Mr. H. W. Dawson, of Dawson Bros., Toronto, said that there was no class of freight paying higher and more disproportionate charges than fruit.

Mr. E. D. Smith, M. P., of Winona, said that the railway commission should have two men representing the producers of Canada and one should be a practical farmer. If two members should represent the railways, the producers would be in no better position than before.

The following committee was appointed to attend to the question of transportation: Messrs. W. H. Bunting, St. Catharines; R. J. Graham, Belleville; H. W. Dawson, Toronto; D. D. Wilson, Seaforth; W. L. Smith, Toronto; D. J. MacKinnon, Grimsby, and J. M. Shuttleworth, Brantford.

OCEAN RATES.

Mr. L. Woolverton, Grimsby, introduced the question of ocean rates. He had shipped Bartlett pears last summer, and much of the fruit had been seriously injured by the temperature in the fruit compartments on the vessels being too high. If a certainty of temperature could be obtained on the ocean vessels a good trade could be done in England.

Mr. W. W. Moore, of Ottawa, chief of the market division of the Department of Agriculture, explained that the difficulty complained of by Mr. Woolverton was that the steamers' cold storage compartments were too closely packed, and the chamber could not be properly cooled in the centre. In another case, on the steamer Cicilian, the fruits sent by Mr. Woolverton and Mr. E. D. Smith were over-ripe before leaving Montreal. A quantity of California fruit sent in the same chambers turned out splendidly at Glasgow.

Mr. E. D. Smith, replying, said that some of the blame was due to the railway for delay in delivering at Montreal.

In keeping with the suggestion for the appointment of a committee on organization, with reference to co-operative work, the following were appointed: Messrs. G. W. Cody, Leamington; Robert Thompson, St. Catharines; A. W. Peart, Burlington; A. E. Sherrington, Walkerton, and Wm. Rickard, M. P. P.

A resolution was passed urging the Government to remit the duties on raw sugar for canning, and on fruit packages, and asking for legislation to compel canners to label canned preserves to show the actual contents, and that such goods be labelled "Made in Canada."

Mr. A. C. McNeill read a brief address upon fruit packages. Uniformity of packages was a great essential. He recommended the use of a standard apple box 10 by 11 by 20 inches. The matter was referred to a committee.

BENEFIT OF CO-OPERATION.

In the afternoon Mr. W. H. Owen, of Catawba Island, Ohio, spoke of co-operative fruit packing and marketing. He dwelt most strongly upon the value of a central packing house system, where the fruit is collected and graded, and the commission

merchants and buyers come to buy. Mr. A. E. Sherrington, of Walkerton, explained how the co-operative system had worked in Bruce county, where it is being given a trial. In the handling of aples it had been a great benefit to the fruit growers. Many other members discussed the matter, all being convinced of the value of such a plan.

Prof. L. R. Taft, of the Agricultural College, Michigan, gave an address upon peach-growing in Michigan. The people of Michigan had found the most profitable peach for their orchards and markets to be the Alberta. The FitzGerald and others which had good records in Canada had not done well in Michigan.

THE GOVERNMENT EXPERT.

Prof. W. T. Macoun, horticulturist at the Ottawa Experimental. Farm, spoke upon hardy fruits for northern districts. From the present northern limits of commercial fruit growing there was a district of some 500 miles to James Bay. There was no probable reason why apples should not be grown as far north as James Bay. Sun scald, root killing, blight and mice were the principal causes of failure at present in northern localities. Prof. Macoun explained the methods by which these troubles could be overcome, as found by experiments at Ottawa.

Dr. Wm. Saunders, director of the Ottawa Experimental Farm, supplemented Prof. Macoun's paper with an account of the work done by the experimental farm in the way of testing fruit trees for use in the northern parts of Canada and in the northwest.

Mr. W. A. MacKinnon, chief of the fruit division of the Agricultural Department, Ottawa, spoke upon power spraying. In a district near Woodstock under unfavorable conditions the cost of power spraying was four cents per tree per application, and the result was that there was great difficulty in finding scabs on sprayed trees. On unsprayed trees there was difficulty in finding any fruit trees free from scabs.

Mr. W. H. Owen said that the co-operative farmers of Catawba Island, Ohio, had gone in for power spraying, and had had much success.

A vote of thanks was tendered to the American fruit growers present.

OFFICERS ELECTED.

The nominating committee reported the officers for the coming year. Their report recommended the re-election of all of the officers and directors. The principal officers therefore are: President, W. H. Bunting, St. Catharines; vice-president, A. McNeill, Walkerville. Mr. W. W. Cox, of Collingwood, was replaced on the board of directors by A. E. Sherrington, of Walkerton.

A committee was appointed, consisting of Messrs. W. H. Bunting, A. McNeill and Murray Pettit, to act with kindred societies in matters of mutual interest.

JANUARY NUMBER.

In the January number of this journal much prominence will be given to topics discussed at the annual meeting, and altogether we hope to make it especially attractive to all our readers.

AN ITEM having appeared in a Toronto paper about a squash weighing 104 pounds, the Goderich Star rises to remark something about what can be grown in Huron county. It says: "Without going so far back as Mr. Wm. Warnock's champion squash at the Chicago World's Fair, weighing over 400 pounds, last year he grew one weighing 322 pounds, and John S. Howrie one weighing 308 pounds. and this year Mr. Howrie gained a Rennie prize with one of 285 pounds. When it comes to growing squashes Goderich can beat the world."

Open Letters.

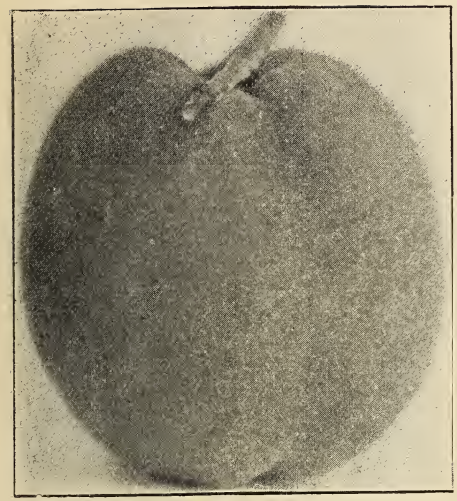

FIG. 2709 HILL'S SEEDLING PEACH.

HILL'S SEEDLING PEACH.

SIR,—I send herewith a sample of peach grown in my garden at Orangeville, in the County of Dufferin, during the present season. I also send a photograph of a group of peaches, part of the crop of a dozen or so taken from the same tree on the 8th instant. They appear to me to have merit, not only as to size and color, but as to flavor. The tree upon which they were grown is a chance seedling growing about twenty-five feet from the east side of my house, without having had any protection or special care. It is about six years old, twelve feet high and some three inches in diameter. This is the first year it has fruited—some bloom last year did not mature to fruit. I send you these particulars because of the fact that the results have been obtained at a point near the height of land in the central portion of Ontario—over twelve hundred feet above the lake level at Toronto. I would be pleased if you would express some opinion upon the matter. Doubtless in the Niagara section the variety might prove a useful late peach.

SIR,—I have been reading your "English Horticultural Notes" with much interest, and thought you would be interested in seeing a sample of a large apple,, the "Nancy Jackson," which grew on one of my dwarf apple trees, purchased from Thos. Rivers & Sons, of Sawbridgeshire, England. I have planted my dwarfs 9 x 9, but in Bungards Nurseries, at Maidstone, in Kent, I saw them planted 6 x 6 feet; they had been planted for twenty years and looked beautifully healthy.

London. S. P. COLLYER.

Our Book Table.

REPORT OF THE DIRECTOR OF EXPERIMENTAL FARMS FOR 1902. By Wm. Saunders, L.L.D., Ottawa; also

EVIDENCE OF DR. WM. SAUNDERS, before the Select Standing Committee on Agriculture and Colonization, 1903.

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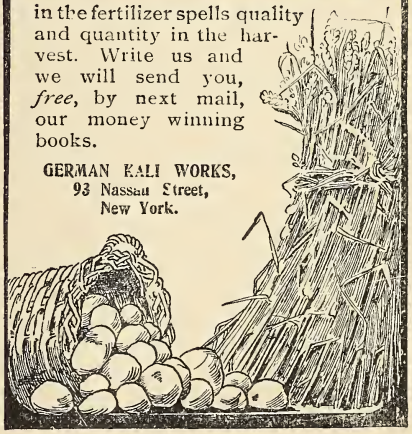

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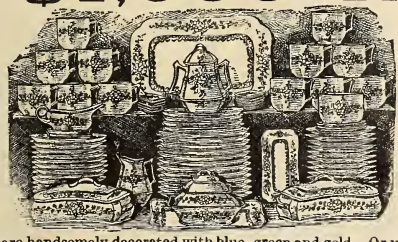

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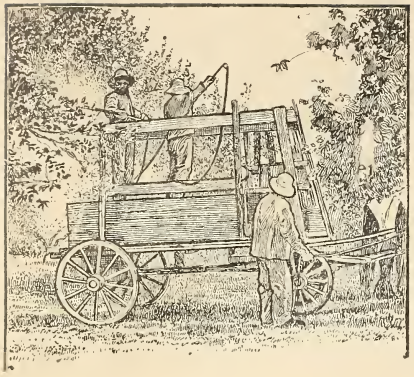

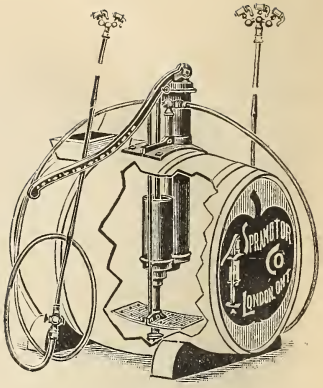

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